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Letter From The Editor



The Virtual Community

Teleconferencing is a world that most computer users discover annually. It is a world of online users such as GopherNet, Chat and Prodigy with message areas, distribution lists of information and downloadable files of computer programs or data files—plans in store, clinics, and information and communication programs.

A new vocabulary has emerged to describe the phenomena. People talk about "going online," "system space" and "virtual community."

Unfortunately this vast array of information is extremely difficult to access. I see a need for easier, more accessible, and affordable online services.

Failed Attempts

We have had a few noble attempts to create a Canadian national information service. Bell Canada has poured millions and millions into this. This service was long-term project as well as projects as well as service. It is now defunct and still in the US-based Prodigy network and the French Market. It has unfortunately not met with little success. Any idea as to why? The idea was brought by Bell Canada's marketing software to create a user-friendly service. They poured some millions into their attempt which sadly closed last year. I had high hopes for this one. Both these services had problems reaching the critical mass necessary to a large audience. Any just plain run out of money.

Free Trade

Of late, one of the American services has been moving in Canada, and recently happened to service to include our major Canadian cities (they finally made it to Winnipeg). I have recently contacted the Canada branch of this, to see exclusively for Canada topics—areas where we might be able to reflect on our national identity. Said, the head of Canada users are American and the service reflects the interests of the users.

Those Eastern 800's

Many of these providers were brought up by a spin-off to the local office of Canada Remote Service (CRS). Canada Remote is a Toronto-based, Canada-wide 800 with over 300 phone lines, multiple operators of message stores to seek machine reports, newsletters and books of other good things. CRS is a great 800. It is a large, well-run, efficient customer service. But it is only available as a local call from Toronto and the immediate vicinity. They do have remote connections with many remote 800s throughout Canada (and a US line in Detroit) but even 800 is not for the hard-headed, and even then I get some in all the great stuff that is on CRS. Even the Hot Line when a day when he can reach our service Canada with affordable access (he says that the United bid to secure competition will result in better international terms for Canadians).

Make It Easier

Another shortcoming of most 800s is a command-line interface. Although a windowing interface when made 800 easier for PC users in the online world, graphical interfaces are rare. The major reason is that they need to show these things automatically because everything is limited by the speed of the modem. These little boxes that allow computers to talk over phone lines. One service that has overcome this is America Online. This rich interface, which is available in both Mac and PC (or Windows) versions demands many of the standard access to the user's computer, and you transmit data over the phone lines. This allows the personalized ease of use. Also, it is America, not local accessibility from some major Canadian store, expensive (Canadian pay a \$12/line rate) and limited to Mac and PC.

Somewhere Out There

Somewhere out there, there is some company or person that will eventually put together all the pieces. When I think of it is an affordable national service, instantly connecting all major Canadian cities through a local call, with a fast, user-friendly, windowing interface. In the long run, I believe this will do more for national unity than more constitutional conferences. Please—someone join in!

Enjoy the issue

K. H. H. H.

Karen Steph-Klein
Editor/Publisher

Table of Contents

B.C. EDITION • JUNE 1992

FEATURES

- Interview: Allen Ashton**..... 10
The president of WordPerfect Corp. speaks out. *By Guy Whangchik*
- Multimedia Design Issues**..... 14
The challenges of developing a multimedia app. *By Thomas Guay*
- Multimedia**..... 16
New word of the 90s. *By Paul Zacher*



Choosing The Right Laser Printer.....25

Laser printers have finally come of age. *By Guy Whangchik*

Printer English..... 23

Ink Jet Printers..... 24

Color Printers..... 25

User Service Tips for Laser Printers.....36

Ten quick tips for doing yourself. *By Christopher Smith*

The Evolving Meaning of "Network Printer".....36

Some questions to ponder when choosing an office printer. *By David Gordon*

Upgrading Your PC.....52

The many ways to speed up your machine. *By Andy Green*

REVIEWS

Accel-a-Writer.....38

Upgrade your old LaserWriter to 600 dpi. *By Dennis Bennett*

Star Micronics NX-2430 Printer.....40

The latest member of the Star Micronics line. *By John McGinnis*

Radius TV.....24

Multimedia TV for the Mac. *By Dennis Bennett*

All Computers 486 Upgrade.....58

New for PC. *From Windows*

Earth Summit in Rio.....47

Computer Network in Earth. *By Guy Whangchik*

Nentucket to Play Key Role.....61

In CA's database storage. *From Windows*

Screen Machine.....21

A new look at desktop. *By Dennis Bennett*

P4PS.....27

PC printing with the Postscript printers. *By Paul Zacher*



DEPARTMENTS

Mailbox 6	MacWorld 7
What's New 7	Newsbytes 8
Apple News 8	CAI News 8
Canadian News 8	General News 8, 10

Multimedia News 75	Published Computer News 88, 89
PC News 89, 90, 92	Printer News 92
Trends 93	Windows 93
Classifieds 95	Calendar 95
Advertiser's Index 92	About the Centre 94

Editorial Schedule

DATE	TITLE	COPY	CANADA/USC/MS	DESTRUCTION
July '92	Desktop Software Mass Storage Options Point of Sale	June 10	June 11	June 28
Aug '92	Networking Home Office Computing Software for Windows/Unix	July 6	July 8	July 24
Sept '92	Education & Training Workstations & Unix	Aug 5	Aug 6	Aug 21

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What's New



New Darius laser printer handles continuous stationary

handwritten documents. Darius Technology is now shipping its new Darius LaserFlow laser printer. It is designed specifically for high-volume continuous form applications—per minute the kind of mass continuously needed with report cards, documents, "line print" or

With its ability to handle standard paper, the LaserFlow would appear to be a good way of printing professional-looking line reports and running mailing lists. It can do 14 pages per minute, produce a resolution of 600 dots per inch and uses the PCL4 page control language (popularized in the HP LaserJet family). For further details, a contact Darius Technology at (800) 654-3336.



Mouse Ergonomics

No two human hands are alike, but many of the "one-size-fits-all" computer mice are exactly identical in size and proportions. As a result, when you use your hand to move the mouse around, it may not always be a comfortable fit. It's the kind of problem you don't know you have until someone offers you a solution to it. One company claims to have the answer: Ergonomics.

These are ergonomically-designed soft foam pads which attach to the outside of your mouse so that you can shape it more closely to your hand. Ergonomics come in a variety of colors, including blue, orange, purple, grey and black. Goodbye discomfort! Buy Ergonomics with them for \$7.95 each.

Call Ergonomics at (800) 338-6880 for further details.

Print Connection established

You can buy a printer at almost any cost these days, but there has still been a disconnect in Vancouver that you could go to both as professional and private.

The Print Connection, a new private specialty store, recently opened in Vancouver, claims to change all of that. The Print Connection handles all manner of printers—from single-sheet desktop systems up to high-end laser printers and color systems.

It is also a place to buy the self-contained LaserJet 4.0 plus enhancement system—a 1440 dpi laser upgrade and also has a price tag that starts from \$1,495. Or for high-end color systems, up to \$2,995. Or for high-end laser systems, up to \$2,995.

To learn further details on The Print Connection, call Gail Gandy at (604) 679-7776.

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What's New

Unauthorized Bill Gates biography promises to tell all

It had to happen. Given the number publicists surrounding the success of Microsoft chairman and co-founder Bill Gates was the product of a series of events, it was only a matter of time before someone sat down to write a book about him.

In this case, it was two authors—David Post, *Washington Post* journalist, and Jon Enck, who has written what may be the first "soft" biography of the "new power" industry's biggest star.

The book, published by John Wiley and Sons, is called *Real Gates: The Making of the Microsoft Legend*.

The authors point out that with *Real Gates*, a new breed of computer books has emerged. They are not just about the company's success, but also about the man behind the success. The book is a collection of interviews with Gates, his friends, and his enemies.

The authors point out that with *Real Gates*, a new breed of computer books has emerged. They are not just about the company's success, but also about the man behind the success. The book is a collection of interviews with Gates, his friends, and his enemies.

company industry. Having recently won a Pulitzer Prize for his biography of Apple co-founder Steve Jobs, Microsoft's former CEO, Gates has been the subject of a number of books.

Jobs and Erickson claim that Bill Gates is not a genius, but a man who has been lucky. They also claim that Gates is not a visionary, but a man who has been lucky.

It is further claimed that Gates, with his obsession for power, is a man who has been lucky. They also claim that Gates is not a visionary, but a man who has been lucky.

With IBM for its counsel of the company industry, Microsoft is reportedly the latest giant to be taken on by the new breed of computer books. The book is a collection of interviews with Gates, his friends, and his enemies.

To get your copy of this fascinating new book in your local book store or contact the publisher, John Wiley & Sons, Canada, Limited, at 22 Worcester Road, Toronto, Ontario, M5W 1L2 or by phone at (416) 593-0888.

Microsoft claims DOS/Windows "2 to 5 times faster" than OS/2

In an effort to win IBM PS/2 users away from the OS/2 2.0 operating system, which now comes standard with their system, Microsoft recently announced an upgrade of its package of Microsoft Windows 3.1 and MS-DOS 5 for PS/2 machines in a special price. According to Microsoft, the offer is "for customers who want PS/2 machines but want MS-DOS and Windows to get better performance, easier use, and speed-up for their desktop applications."

The offer has been made in reaction to IBM's recent announcement that OS/2 2.0 is being pre-installed on PS/2 models 50 and 55. Microsoft says that this "extra" price of \$100 is a "one-time" price for customers who want PS/2 machines but want MS-DOS and Windows to get better performance, easier use, and speed-up for their desktop applications."

"In tests performed on a variety of PCs, including PS/2s, Windows is consistently two to five times faster than OS/2 (2.0) in running applications for Windows," claimed Paul Maritz, vice president of product testing in Microsoft.

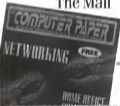
As a result, customers are being encouraged to switch to Windows. The new Windows 3.1 and MS-DOS 5.0 are being sold for \$100. The new Windows 3.1 and MS-DOS 5.0 are being sold for \$100. The new Windows 3.1 and MS-DOS 5.0 are being sold for \$100.

Microsoft says the package will be available for PS/2 50 and 55 models. The package will be available for PS/2 50 and 55 models. The package will be available for PS/2 50 and 55 models.

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What's New

GEne attempts to inspire national unity

In an effort to add an ethnic twist to the national debate, the Office Information Services has set up the online Canada BroadTalk (CBT). It is Canada's first French, English, German-Telnet and is the first BroadTalk to focus on Canadian affairs.

Berlyne Holmbeck is the chief system operator (Jung) and Bob Macey and Paul Poirer are assistant Jungs. All three live in Quebec. On Thursdays at 10:00 pm - 12:00 pm EDT, you can join the Jungs for some lively discussion in the Real Time Conference (RCF) on page 1228.

GEne says that the Canada BroadTalk is for all those users involved in Canadian news and politics, sports, travel, art, social culture, Canadian/US relations, Le Français speaking and "The Great White North."

Access is by part of the \$1.95-per-month OfficeMosaic Services fee. There are also hourly fees about Canada, including word and camera access. GEne has also recently added direct telephone access to Vancouver, Winnipeg, London and Halifax. Contact: 1204-248-0000 or 1-800-254-0000 for more information.

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BC government software benefits \$100,000 royalty payment

One of the British Columbia government's recent moves has been the commercial software market has started to pay-off. As part of its Technology Commercialization programme, the BC government sold the rights to market its Government Administration Resource Entry (GARE) software - originally developed for the BC Corrections Bureau for use in prisons - to Richardson-based OGS Technologies Corporation.

OGS has succeeded in selling versions of the software to police and corrections officials in Alberta, Saskatchewan, Manitoba and Ontario - as well as to US law enforcement organizations in Washington State, Idaho, Texas and New England.

Under the terms of its agreement with the BC government, a \$100,000 payment - representing the government's share of profits to be - was made in the previous year April. "The GARE software has resulted in generation of a wide range of successful information and has proven valuable in maintaining a modern British Columbia corrections system," said Attorney General Colin Clark.

Future backing and recent operations, contract information, prison status, cell locations, parole and release dates are among the information contained under modules of the GARE system.

For more details on GARE, call Bob Marshall at OGS Technologies Corporation at (604) 273-0200.

Vancouver Artist the Big Winner in Corel Design Competition

OTTAWA, ONTARIO, MAY 18 (CP) — At a formal ceremony held at the National Gallery of Canada, Corel Inc. announced the winners in its third annual World Design Contest.

Corel awarded the winners, for many of its CorelDraw graphics software, to provide the software, developing designs, and gather royalty rights which it can then resell to its customers.

This year's grand prize went to Bill Friesen of The Vancouver Printers (604-455-4888), in Vancouver, for "Box," which also took top prize in the "People, Places, and Animals" category. The grand

prize was a gold for worth \$10,000.

Michael Campbell, Corel's chairman, president, said chief executive, told Newswire entries in the competition jumped from 1,000 to 3,000 this year.

"People have spent heavily on their own and have a sense of their designs," he said. Corel receives some of the cost of the software by selling a CD-ROM disk containing all the designs for \$99. This provides users with ideas and allows them to study the designs to learn about the techniques the winning artists have used. Campbell said.

Corel (604) 728-8222.

continued from page 10

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INTERVIEW

Alan Ashton

The President of WordPerfect Corp. Speaks Out

By Geoff Winkler



ALAN C. ASHTON isn't a name you have heard around in the computer press very often. He rarely gives interviews and largely shies personal questions, yet he is president and co-founder of WordPerfect Corporation, the world's largest word-processing software company.

Despite his key position in WordPerfect, Ashton comes across as a unassuming and unassuming university professor from Utah. This shouldn't come as too much of a surprise, as that's exactly what he is. Ashton, now 46, graduated magna cum laude in mathematics from the University of Utah in 1966. He earned his Ph.D. in computer science from the same university in 1970.

WordPerfect, in fact, evolved from an idea which originated as early as 1966 when Alan, then a graduate student, introduced two computer projects for possible research—one involving music and the other word processing.

His professors agreed for the first idea. It was not until eight years later, in 1976, that Dr. Ashton received his second idea and reacted on the path that eventually led to the bestselling WordPerfect 5.1.

Dr. Ashton was a full professor of computer science in Brigham Young University for 14 years. He says he enjoyed working with students on advanced degree projects and that his willingness to help others learn prompted BYU's computer science class of 1986 to elect him the "Outstanding Professor of the Year." Ashton continued to teach computer science classes until 1987 when he left BYU to work full-time as president of WordPerfect Corporation.

Ashton now gives the Outstanding Professor of the Year Award in 1987 by the Salt Lake Business Association of Utah. He says he is a family man at heart and enjoys spending time with his wife and 11 children in their family home in Ogden, Utah. Ashton's other interests include farming, tennis (especially his tennis) and computer tennis.

Ashton is also interested in giving out to meet his company's work. The Computer Paper's coauthor Geoff Winkler was granted an interview with him last month when Ashton's visit to The Whopping PC Users Group.

QW: What is your feeling about how well WordPerfect for Windows has been taken up? Is it more difficult to sell in the Windows market than expected, particularly to new Windows users? How much do you think the Windows environment tends to lock and limit a lot more the way other Windows environments have been traditionally been the case for DOS users?

A: We have been very excited by our sales of WordPerfect for Windows. Are said 400,000 copies sold within the first month and around 800,000 copies have been sold in total. And last night, in the Whopping PC Users Group presentation, we showed a new version release which includes new features such as drag and drop, the ability to incorporate foreign fonts as part of your WordPerfect for Windows documents, as well as tools like a screen capture application borrowed from within WordPerfect.

So, we are very excited about future enhancements and releases of WordPerfect for Windows, as well as new OS/2 and DOS releases. Although it is difficult to compare (how big the challenge is in selling into a particular marketplace) because we sell through distributors, we have been happy and excited about the excellent sales in the Windows environment.

As a result, as OS/2 products develop, most companies will be looking to offer the same level of features and the same type of pricing as those features. So we will have to rely on the level number of features we support: Windows, DOS, OS/2, Macintosh, mainframe, NetX, Unix and even the IBM mainframes.

It is important that our software become compatible and become a good enough on multiple platforms because we find that our customers require word processing on their multiple platforms rather than just the one.



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all our applications under Windows. There will, for example, be an option to send your files from within WordPerfect. And we are being very open about the mail system we will work with, if you use Microsoft Mail or Lotus ccMail, you will still be able to send mail.

QWL WordPerfect recently earned the "Integrator of software market in the first time" label from the magazine *Info*. What does this mean?

Ale: The product is called WordPerfect Works and the way it came about was that we had spent a lot of time in the past in proving and implementing spreadsheet technology, graphics technology and communications technology in previous work in WordPerfect and WordPerfect Executive. People have been asking to upgrade our offerings in these areas and give further capability. WordPerfect Executive offered a limited number of functions but integrated very nicely. After writing the success of Microsoft's Works in the Mac market, we took elements of WordPerfect Executive and added communications functions and it turned out to be a very high-end product with high-grade functions.

We looked at putting all the major capabilities of all our products as it had turned out it would be too large, so we put in all the functions it made sense for people to want to add toward their work. They include the functions of Lotus/Parsons (WordPerfect's entry-level wordprocessing product), which merges complex WordPerfect files with more such as tables or forms and although they don't appear on-screen, they are still there and can be edited.

We have also added the essence of WordPerfect (WordPerfect's presentation graphics software) and WordPerfect (the company's spreadsheet) code and our own look in the file (software for network and address book and added that as a database capability. And people just crack for us to have communications capabilities, so we get together with Microsoft and they did a tremendous job of providing us with certain capabilities for logging more business letters, making windows supporting different terminal emulators, in well as file transfer protocols such as Kermit, X.25 and Telexnet.

We have also added the capabilities to deal right from Lotus/Parsons you can just do your document and fix it right up. All of these products we integrated well together so that you can be in the graphics package and bring images right into WordPerfect documents, while documents of letters and addresses can be easily managed. It looks like our complete operating environment. ■



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The next level of innovation is at the level of the platform or GUI. All Mac, Amiga, and Windows applications tend to have a similar interface. Once the user has learned the interface, all applications following the in-house guidelines for the platform or GUI are fairly intuitive to the user. It is at this point that a computer-interactive user of an interface becomes intuitive, since the user has learned that dragging a disk icon to the trash can open that disk, that is becomes intuitive. Violating the in-house guidelines is dangerous, since it will affect those users who have become in-

terfamiliar with the interface that they no longer bother reading the manual. Consider a beginner and they will learn something, consider an experienced user and they will forget you!

The final level of innovation is at the level of specific applications. An example of this is WordPerfect's command-key sequences. Again, it is the experienced user who is most affected by changing the interface in the latest version of your application. Work the look on the face of a WordPerfect for DOS user who grows ALTF4 in WordPerfect for Windows (in the future, this means "Work user" in the

future, it means "Work without saving changes")—old. Even if you tell the user of the changes, it is likely that they will, not of look, use the interface in the same way as in the previous version of the application.

To sum up the issue of interface:

1. Strive to provide the highest level of innovation possible.
2. Avoid including common-sense issues in your interface.
3. Once you've established a level of innovation, do not repeat it.
4. Document any aspects of the interface that may not be immediately obvious, such as clicking on a picture of a small document to load it to play.

Navigation Issues

There are several issues dealing with how a user will navigate the application. The first deals with how the navigation paths (linear, non-linear, or both) fit the purpose of the application: is to teach the user the sequence of steps in performing a task, such as learning how to tune up a car, then a linear navigation path is the best. A danger in using a linear path is that the application will read up a simple page number. An application which is just an electronic page number is best not written—a book on the subject is cheaper. Related navigation paths are best when the applied on a purpose: it is often more to explore all the facets and relationships involved with the topic in hand. There are also situations where it is best to provide both linear and related paths, such as in the case of a language tutor.

One problem with using the related non-linear method, such as Hyperion, is that it imposes a high cognitive load on the user. The user has to remember both where they are within the application and what

links they have already explored. Failure to do so will get the user lost and confused. This problem is compounded by the fact that most of our learning has been linear. The traditional book teaches a linear approach to knowledge. Hyperion and Hypermedia are still. In the next part, an additional approach is investigated.

Therefore you must provide the user with navigational aids when you employ a related navigational. These aids include such a menu as backlink, while continuous help, and a graphic map of all the linkages in the application. This map should be dynamically updated to show the user what linkages they have explored and where they are in the moment. The graphic map can also be reduced by minimizing the size of discovering graphics, sound effects, and transitions. On the application menu really need to go "back" while the screen is blank to start a new screen. To reveal the next screen a simple, silent transition is usually best.

Conclusion

Hopefully this article has raised your awareness of the issues of the issues involved in multimedia design. Remember keep it simple, keep it intuitive, and focus on the information needs of the user. Avoid creating any needless navigation mechanisms to the designer's anxiety. ■

Thomas Dwyer is employed at the Technical Institute for both the Department of Communications and the School of Resource Management at Simon Fraser University. She has over 10 years of experience in engineering and has been in multimedia. One of her multimedia applications developed at the 1990 Pacific University Computer Conference. She can be reached via MFL List 585 (504-276-1214).

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Some manufacturers, such as Canon, have taken the technology a step further and moved imaging sensors that capture pictures on silicon layers of film. Because these technologies will inevitably produce smaller, and you've got a final product that superimposes focus onto film. If you've ever been fooled by those familiar commercials with the lightning bolts pending across the screen with lightning, you realize where the conspiracy is coming from.

Realtime and the Generation Gap

As a side note from the technology, a new (or renewed) in the advertising field, many companies continually report multimedia for real-time events. The question is not whether or not the new digital technology is in its early years, because the new medium of television lacks "the immediacy and public image" proposed by radio.

Nothing new changes this, of course—except that. New generations will now have access to multimedia, perhaps today's youngsters will even come to regard it as plain when virtual reality and virtual intelligence appear.

Could such a time the medium will have to share of CERO. A recent Adco presentation at Cagney's Convention Center is a good example. To some Adco executives, the slick presentations was further enhanced through the use of animated sequences composed with Adobe Premiere. But along with all the "sex and ads" could be found the occasional content of "world," pointing over again that you can't please everyone—especially computer executives.

Bill Postman's latest book, *Technopoly*, reflects many of the concerns shared by the critics of multimedia. Overwhelmed with real and virtual stimuli, and occasionally called upon to interact with the computer, it's no surprise that we sometimes receive multimedia of stimuli. This new technology demands more stimulus in a way that is aggressive, compelling the user to interact. But multimedia, the mixing of video and animation, of sound and text packs so much information into a given time frame that it's hard to ignore.

Using and Misusing the Technology

New technology often has a strange way of emerging through its use in the real-life situations, such as the infamous 900 telephone numbers in the United States. Multimedia is no exception. Domestic multimedia users have, for years, known about interactive HyperCard stacks designed by Microsoft that include some of the medium. Although developed for commercial purposes, some of these stacks challenge your definition of obscure, and have given multimedia a bad reputation.

Getting aside the means of computer users interacting with multimedia for commercial purposes just here for the software has progressed. When technology becomes as available that even noncommercial users can produce a film-quality segment on disk, you know it will be popular. Except for some productive use, multimedia provides a lot of potential for the home-computer market.

It's not difficult to envision individuals producing multi-quality commercials or even movies from their own homes in the near future. Like this decade's publishing industry of the Web, multimedia also offers some interesting possibilities for self-employment.

Unfortunately, assembling multimedia productions with a strong message or sales pitch is not a sure thing. Multimedia demands a multi-disciplined approach if it is to succeed here. Educational specialists, technical personnel, writers and marketing experts all have their place in the field. And just to insure that the critical messages from the packaging, a multi-media expert doesn't lose sight of what looks like a step-

stones of the technology right now any in fact be readily obtainable in its commercial availability in comparison to the usage through all the bells and whistles of the computer.

Multimedia is just now beginning to stand in reputation as a fringe technology. Critics who claim that the medium means the viewer with too much information may have a rough argument about it; they lack, instead of the medium itself is a direct and new form of communicating. The logic here is that, because multimedia appears to be the ideal and most means, it is more to get a complicated message across to others.

This ability to express complicated messages in what has educators is caused by the medium. Not only does multimedia present to viewers and hold one in attention—it provides a way of learning with the user like we've never seen before. Real-time medical software, capable of analyzing human responses during surgery is already a reality. Coupled with digitized film clips of blood flow, heart sounds and nerve-response responses, the educational possibilities have no comparison.

For students, who learn best by explanation than by showing real-life examples captured on disk? Should there be change the conditions of a dangerous chemical

experiment on a computer, then show the resulting explosion on a video monitor with the sound emitted on. The message gets across. No one gets hurt. There's no time to clean up.

Getting Started in Mac Multimedia

If you're intrigued by multimedia and looking a little left out, there are some reasonably priced software packages available for Mac users. You can do some wonderful presentations with the Claris HyperCard Development Kit, and you'll find no shortage of selling videos in HyperCard included with every Macintosh computer with A/D conversion. From Vancouver's

The new OS/2 can do more And all at the same time



Media Works, is a good option to HyperCard, allowing users to incorporate both word and color animation in a single HyperCard stack. Both packages include fairly good documentation, and enable users to create impressive multimedia presentations.

For power users and would-be multimedia producers such as Microsoft Director and Adobe Director offer incredible flexibility. Three-dimensional production isn't whole (drawing, color), level 3D. Professional and technical are good too. Keep in mind that these products require a fair amount of RAM and are painfully slow to work with on the lower-

priced machines.

Wherever your level of involvement from viewer to multimedia subject—you can be fairly confident that multimedia will grow in popularity as the price in content of all these comes for investment for educators, offices, and corporate headquarters.

If you remain unconvinced that the technology is suitable in educational rooms, take a look at the new Canadian White House Magazine, published by the Alberta Communications Group. It's a quick look at a diverse collection of articles and good illustrations ranging from low-end users to medical software. For any you, consider

standing the 1992 International Multimedia & Learning Conference & Exhibition from September 3-5 at the Edmonton Convention Center. Contact the Alberta Communications Group at (904) 668-7319 for more information.

With this level of interest, multimedia could eventually become the information superhighway, becoming fast and mainstream in changing that nation's culture. Look, rather, just in comparison.

Peter Tallet is an editor with the city of Calgary in the Data Processing Services Dept. and is a freelance writer on varied tech magazines. Contact him at 403-288-0261.

IBM Multimedia Centre based in Vancouver

A wide range of multimedia products and services are available from IBM Canada and will expand playback and recording capabilities of 2D displays, touchscreens, and software for authoring, presentation, and delivery. From its multimedia systems headquarters in Vancouver (previously due to the success of the company's Expo 86 touchscreens display booth and related developments), IBM's multimedia support facility moves to the Computer Page.

QCP: What does the Multimedia Centre do?

CM: We have access to any where job is to work with the client. We have product support knowledge available in specific areas, video editing, the benefits of the products. We do create shows and consulting.

TCF: Where do you process the media opportunities for the 1992?

CM: The market for 1992 is now being to build. It is the commercial market. One of the most successful areas in 1992 is video training. For one thing, the information about systems are limited to video is not updated, it's critical. It's also an appropriate method of conveying information to users who may be non-computer literate.

We're working on a lot of pilot programs. A bank, for example, is planning to roll out 250 digital video touchscreens-based training. You can have a video agent connected over your network for the user might call. You're looking at training.

A pilot program in one of the big banks says our IBM/TV set up IBM and IBM on every day.

A lot of people who have been in this production, or information, are now doing that the next place to go is multimedia.

For the developers, we're excited when we call the Multimedia Development Program. For IBM US they go very very excited.

TCF: People have constructed that IBM has the wrong idea-point, that it's just too high.

CM: One everyone needs DVI in a multimedia system. The multimedia requirements vary widely, depending on what the system will be used for. After all, a 286 system with a CD-ROM drive and a sound board is certainly "multimedia capable," but it falls far below what includes video in and out and more things.

Near too far in the future, we foresee perhaps systems that will have video, pen-able, touch screen, and other communication capabilities. CD-ROM 3X (an improved CD-ROM data format that supports the interrelated developments required for full-motion video with simultaneous audio), and a resolution-sensitive device for storage. When these systems hit a price point of \$1500 or so, multimedia will achieve critical mass.

TCF: What is Future-to-Present?

CM: DVI is a DVI-based video-conferencing system we will have available by the end of this year. Also of the early development was done in IBM's Canadian Lab.

FFP is essentially a shared medium. You can communicate, use it like a child's board, capture and it runs under OS/2.

TCF: We're not under Windows?

CM: No. We could do the basic functionality but it would break more often. It needs the multi-threading of OS/2 or something like Windows NT.

IBM publishes a magazine called IBM Multimedia Solutions. Authors interested in submitting their work send their name and address to IBM Multimedia Solutions, 6111 Sherbrook Parkway, Internal Zip 99666, Alton, George N05T.

Contact: IBM Canada Publications, 1-800-855-0000.

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OS/2's refined Workplace Shell (the way it organizes your screen) allows you to group files, programs and devices under a single icon. Click on the icon and everything you need for your work is automatically opened up. Information can be dynamically linked from a variety of application sources, so that the data you see on screen is always the latest. Graphics and text can be "cut and pasted" between applications to mimic what operating systems the application was originally written for.

Finally, the new OS/2 is a totally crashproof. If any individual application goes down, the whole system doesn't follow. Only one application has to be re-started.

All in all, you'll find that the new OS/2 is a completely new kind of animal, at once very powerful and a very popular pet with your end-user.

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Screen Machine

Live Video in a Window for PC or Mac

By George Savelle

From: Fast Electronic Supply, 854-555-FAMT,
Box 550000-1007, Oakdale in North
America by International Electronics,
550-555-5555

Price: PC version (\$54.95) \$2,000
Mac version (\$44.95) \$1,600

Summary: A real-time video display for PC, PS2 and Mac. It features images in real color on the screen. Screen Machine is a multi-window interface for the display of text and graphics on the screen and enables full-motion video in a window of any size shape and position, controlled by the mouse.

When it comes to graphics, we've noticed that producers from Germany tend to be deep, with such features as a wealth of programming possibilities. Always available, German engineers push the envelope of what's possible with software or hardware products that are "feature rich."

The Screen Machine is such a product. Here, there are no video-in windows or products for the PC and the Mac, but Screen Machine (SM) has more programming capability and more technically oriented documentation. It is one of the only products we've seen that gives a preview (256K) image on a display of any high-resolution (1024x768) color. At \$5,000, it is a bit out of the main exposure.



If you ever wanted to learn how to build your own Super L-Control Interface or how to correctly connect a Canon Still Video Player, this is your best of product.

PC and Mac Versions

We use both the PC version and the Mac version in operation. Both have comparable features, with minor differences. For example, the PC version has color image capture (1024x768) and an optional external decoder and available on the Mac version. The Mac version, on the other hand, supports QuickTime (offering, among other things, 192K image compression). The following video is based on the Mac version, which we tested on a Macintosh IIfx with 800K of RAM. Both the Apple and the PC version are available on page 23.

Continued on page 23

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Continued from page 12
and as 386 PCs.

The final test the reviewer's *Cheyenne* users when it returns from "After hours" changes slightly. Because only the manual is clearly written in user-readable proper English, installation and setup procedures are clearly illustrated and described, although, at times, no did not receive necessary information.

Software

The software is fully 386/486 compatible, although it does not take advantage of 3 specific features such as *Software Help* or *Publications*. We requested several

program errors during our tests, but, as it turned out, the culprit was an incompatibility by one of the *Radwin* *FreeCell* (PC) video card. For example, that each problem was "Free Image" in *FREE* system which we could not manage to install without aborting the *FreeCell* Camera program. The error occurred once of our Apple video card was the one the *FreeCell* machine was connected to, but then it did not work until installed in the computer. We asked with a *FreeCell* Machine owner using Apple's Display Card 3024, those errors apparently did not occur with that configuration.

Generally, all functions on our system appeared to work—(you don't even require

FreeCell Machine image quality is very good—the best we've seen from a computer video capture device. The product includes a built-in camera monitor to stabilize other input signals and capture stills at 16 or 240.

FreeCell TV also appeared to be based on capture 10 MHz.



Capturing Images

We found the process of grabbing images to be very convenient. With a simple press of the *FreeCell* button, a large array of capture and appeared in *FreeCell* program for capturing images. Using the *FreeCell* key control panel the image window showing the "FreeCell" camera, using the last parameters. We did not, however, find an on-screen image window, the program frequently complained that it was unable to "capture" an image if we had captured more than 4 or 5 shots to the *FreeCell* button. It was not clear if we captured the image in the *FreeCell* window. The *FreeCell* Machine has a full set of RAM in its minimum requirements.

We were unable to use the *FreeCell* file a screen and/or capture to have the image. The program includes when to capture the image signals from a video file. It's understood to be the image input, but this seems much less elegant than *FreeCell* TV's "all-in-one" method. According to the manual, Mac OS users may connect the video camera directly to their computer's video capture device. In person, we captured on other Macs with video input capabilities, not the *FreeCell*.

We were really disappointed in that this image capture of the *FreeCell* Machine video window was not possible when the capture video *FreeCell* Camera is the default application. In fact, the *FreeCell* video window is not visible in all video running window applications unless you're running the *FreeCell* (BMP) window, or using a device called *FreeCell* and *FreeCell*—correctly referred to as "FreeCell & Q" as the manual—you can quit the *FreeCell* image video window window on the screen. We found with some comment that the user and developer did key support to quit the "FreeCell and Q" mode with the key sequence "Control-Alt-Shift-4". Unfortunately, we're not so sure if this key combination will work in all key layouts. It's not clear how and where to use it.

Programs are supplied for *FreeCell*, *FreeCell*, *FreeCell*, *FreeCell*, *FreeCell*, and *FreeCell*. In fact, the *FreeCell* Machine has a full set of RAM in its minimum requirements.

Programming Possibilities

For programmers who want to incorporate the possibilities of *FreeCell* Machine in their own HyperCard stacks, the video window with an *FreeCell* stack is used to capture stills from within *FreeCell*.

The native features of *FreeCell* Machine are controlled using the *FreeCell* The *FreeCell* is compatible with *HyperCard*, *HyperCard*, *FreeCell*, *FreeCell*, and *FreeCell*.

It is very simple to access *FreeCell* Machine from *HyperCard*. All you have to do is to tell *FreeCell* Machine where the image of the window should contain the *FreeCell* Machine image. The image is then captured, such as changing the position of the window, overlapping or clipping, or in fact. Power on calls are installed to control the video and audio facilities of *FreeCell*.

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Machine, as well as efforts such as today's video, video or live video.

According to the company, a Screen Machine development could eventually provide and/or produce a mobile or a portable product.

4th Dimension Teacher

The package also comes with a demo version of a Screen Machine content for 4th Dimension version 3.2. This version of the 3D-4D content already supports the compression manager of QuickTime. With the help of QuickTime you are now able to store a smaller image of the size 320x160 in less than 100Kbytes without losing too much quality. This means 3D-4D images are as small as 100K. This opens a totally new opportunity for desktop applications.

Conclusion

Screen Machine offers more programmability than any other Mac or PC video product. We're sure or almost sure, and would make a good choice for developers interested in producing custom applications that take advantage of computer-based video.

Nevertheless, potential buyers of this, or any other hardware addition, should be wary of possible software or hardware incompatibilities. One order has to be compatible with a system using compression features to be compatible. Your dealer should be able to help you get together an optimal configuration.

Multimedia Must-haves

We were particularly impressed with the 3D-4D PC-320, gradually best in use by Commercial Dimensions (800/656-8125) for this review. This computer-compatible 3D-4D video deck performed like a champ with six dozens of features that beg for superlatives, such as a built-in character generator, search capabilities, even the ability to control an on-board A/D matrix. Coupled with a program like Multimedia, it becomes possible to create custom applications and "give to others".

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The 4th Dimension Video Teacher is off the top of the list of low-cost multimedia production tools.

as you would in a printer. Although looking like image fidelity of high-end decks, we find it is the best we can do. The software is designed with modern budgets. Commercial Dimensions is one of the only places in North Canada where complete multimedia setups (such as video camera, monitor, and software) are available, and computer-based video, video and computer can be viewed and used. The company also sells the Analog Video Teacher—will be

king of low-cost multimedia production tools. Of course, in education, "low-cost" applies to just about anything under \$15,000. At around \$15,000 for a reasonably complete setup, the Video Teacher is a valuable bargain.

Fast Forward

For the producer to release later this year a new product is called Video Machine, a PC or Mac-based desktop video editing and special effects system said to be a "Timesaver Killer"—a reference to the Apple's popular Video Trainer for the Amiga. Video Machine is expected to cost \$1,000.

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RadiusTV

Multimedia TV for Mac

by Glenn Swartz

Product: RadiusTV
From: Radius International (Canada)
 416-771-8800
Price: \$69.95
Hardware: One year

Summary: RadiusTV is a system for integrating television with the Macintosh. RadiusTV receives live television signals into a Macintosh and displays images on your computer's screen.

RadiusTV is a RadiusTV is a system for integrating television with the Macintosh. Like computerized video display systems for the PC such as TMS's A&A Pro or Real Director Gold's Screen Machine for PC or Mac, RadiusTV converts live television signals into signals and moving images on your computer's screen.

Connect a television antenna, CATV cable, VCR, camcorder, video camera or satellite player to RadiusTV, and you can have television in a window on the Macintosh screen, accompanied by a soundtrack on the Mac's speaker.

RadiusTV differs from its competitors in a few significant ways. The one that first played our curiosity was RadiusTV's ability to decode closed-caption broadcasts and capture the closed-caption transcripts to a file. The possibilities for marketers are thought-provoking. Imagine using up a screen that would serve non-broadcasters for a topic of interest (up to three keywords may be attached file). Once loaded, the system can store on the transcript format and/or keep it alert you of the event. Also possible is the fact that RadiusTV, unlike



The RadiusTV program actually displays the TV audio signal and passes it through to the Mac's audio speaker.

Multimedia TV

RadiusTV is also a platform for the development of multimedia applications, and Radius makes a programmer's toolkit and documentation available separately as an add-on to AppleLink development. The kit includes HyperCard external commands (SCHEM) as well as Pascal and C support.

Macromedia, Inc. currently Macromedia/Parsons has announced support for RadiusTV in its Director software (the Radius extension), and Radius also is working with other companies to develop dynamic content on the RadiusTV. Currently, RadiusTV's full-screen software and hardware's Professional software directly support RadiusTV.

Hardware and installation

The RadiusTV system comprises a Multicard (the "video engine"), a large-format television external box, and the video-to-video input processor (AVP), which fits on a slot and routes the signal from the AVP to the Radius card. A Macintosh display card and monitor are also required. RadiusTV is designed to work with Radius display systems or with the Radius DirectColor/VCL board driving an Apple 15" color monitor.

We tested RadiusTV on a 15" Etc with 2 megabytes of RAM and a Radius DirectColor/VCL card driving an Apple 15" color monitor. Installation was straightforward and well-documented in the 100-page user's manual.



Software

The included screen-processing application, Themes, is a generally (and fast) special-effects software that can perform any of the same set of image manipulations as can Photoshop in Adobe Systems Effects, including color palette optimization (with 16-bit display), sharpening/softening, edge-smoothing, saturation, gamma, etc., zoom, rotate, and window effects, plus a menu-driven. Several more radical image distortions are available, too, including ones that

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Continued on page 27

Laser printers have finally come of age. They are smaller and cheaper than ever. These days the lowest-priced laser printers sell for around the same price you used to pay for dot matrix printers. Meanwhile, the cost of "consumables" such as toner cartridges—traditionally the biggest operating expense for laser printers—has also fallen dramatically.

Choosing the Right Laser Printer

By Cliff Rasmussen

One of the consequences of all these trends has been that a number of desktop machines are now "small-format" printers based around the Canon LBP-A design (and using the Canon L3 printer engine) and coming at less paper per minute, low-cost HP LaserJet-compatible toners which will do as little as \$1,000, or even range of affordable Postscript systems which will for less than \$2,000, and a growing number of "leading edge" laser with higher resolution, less of accuracy, Postscript Level 2 compatibility and support for thin-type fonts.

Given the increasing likelihood that you may even want to buy a laser printer, it is worth briefly reviewing the key factors involved in choosing a laser printer—an issue which occupies you are looking at the next while you will want to establish the quality of output.

Printer Resolution

Resolution determines the sharpness of a printed image. For square-format with low-contrast display resolution is determined, you might call this "dots-per-inch" or "dots per inch" (dpi)—that is the number of individual pixels (dots) that affect resolution. Most laser printers these days offer a resolution of 300 or 600 dots per inch (DPI)—meaning that each square inch of dots makes a total up to 10,000 square pixels that can be individually addressed by the laser or other light source (such as an LED).

One's be fooled in thinking that because most printers offer the same resolution, they will offer images equally as sharp. Laserprinter designers working for one resolution tend to have "mangled" display edge (making what is called "the jaggies") are often limited in what they can do by the necessary trade-off to hold the line map of the image.

Decreasing the size of the dots which make up the image is therefore only part of the solution; the more effective part, for example, is more from 300 dots per inch to 600 dots per inch, gives a 50 percent improvement in edge detail. But a 70 percent increase in RAM memory is needed to achieve this lower definition.

However, the increase from 300 dpi to 600 dpi gives like improvement in image quality except along sloping oblique edges. The exception to this is in applications of scanned halftone pictures, where there is a resolvable improvement.

Font Scaling

The key advantage of using paper-quality, thin languages such as Postscript and PCL, has been the ability to select an appropriate type size and use it in any point size. A number of printer manufacturers—including Apple, Canon, Epson and the others—have recognized this need and offer the scaling options of their built-in font scaling engines.

You would be well advised to get samples of actual pages printed using available fonts from your printer and use a measuring device. The issue here is whether or not the font scaling engine is supported by your software—e.g. HP's LaserJet III, Apple's LPR, Postscript Canon's PSL, in popular applications such as Microsoft Windows 3.1.

Memory

Most printers do not come with more than the very minimum 64KB, so this constitutes significantly in the cost of the machine. This situation often will mean that manufacturers can make a great deal of money selling you RAM modules. A number of the printers in this test, for example, did not have enough RAM to print more than one page at a time from the memory at once. The great benefit comes that after being on the first page of our test document we could not handle the entire size copies of it which we tried to print.

RAM holds a variety of different kinds of information as well, the information needed to print a page together. It is particularly in the form of a "page library"—which now around 1 MB of RAM for each page printed in maximum resolution.

Generally, memory is needed to store documentation "with fonts." These are particularly important on HP LaserJet-compatible printers which do not come with the same high resolution of fonts (currently 90 scaling fonts) as are provided on Postscript systems.

A Few Examples

To give you a brief idea of just how these criteria can be applied in looking for a laser printer, we offer our comments on a few recent laser-printer models.

Hewlett-Packard LaserJet III

When HP entered the marketplace in 1987, it brought down the cost of laser printing by as much as 40 percent and reduced by around the same amount the total space area



Canon LBP-A Plus



Hewlett-Packard LaserJet III

Continued on page 17

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Color Printer Engines

Color printers don't generally use the same print engines as one-inch black-and-white laser printers. One of the more interesting to come to light in recent days is the third member printing engine used by Shinko in color offerings such as the ColorColor printer. It requires three elements: a thermal print head, an ink drum, and paper or transparencies.

The thermal print head consists of individually addressable cells that correspond to a single pixel on each raster line. The ink drum features an ink coating on one side. When the ink drum is turned from behind by the thermal print head, the ink melts and is transferred to the paper or film. The paper has no chemical coating, although it is chosen to ensure a smooth finish.

To function with the color printer, the ink drum is made up of different panels where each section is coated with a single color. For a three-color ink drum, there are three sections, one magenta panel, each color on the ink drum is used to create the color separations generated by the host's PostScript interpreter. These three separations are combined on a page to produce the final color image. The ink drum uses

ultraviolet radiation to cure the ink on the paper as it passes. Ink during the heating process is stored so that the ink is actively transferred. The paper must be accurately positioned for each pass over the thermal print head to ensure correct alignment of the color separations. The alignment is known as registration. Halftoning techniques used by ColorColor are employed to reduce dot registration and paper warping problems are minimized.

To obtain a full-color image, the ink drum is rotated in the first color raster of the ink drum roll. The complete information for that color separation is then printed on the entire page. Then, the ink drum is advanced to the next color, and the paper is backed up. New color information is then printed over the entire page. This process continues for a total of one, three, or four times depending on the number of colors on the installed ink drum roll. When using a three-color ink drum roll, which is printed by overlapping all three colors, which is good, produces very good quality black. With a four-color ink drum roll, the range of darker colors is increased in the CMYK color process and reverse ink loading is minimized. ■

Kansai Introduces Printer Sharing Solutions

Kansai Electric has introduced a new series of network-based printer buffers which allow multiple users to share printers and plotters. Designed to optimize the output efficiency of personal computers and workstations, the EDS-35, EDS-45 and EDS-55 can be configured in a variety of ways depending on user needs.

Each of the buffers features Dynamic Memory Access (DMA) architecture on all input and output ports, enabling them to achieve buffering throughput of up to 300 bytes per second, which is about 50 times faster than any buffer on the market today.

The EDS series printers buffer data after printer sharing capabilities through multiple, configurable input and output parallel ports. The EDS-55 offers three ports, which can be configured to a maximum of two input ports and one output port. The EDS-45 offers four ports while

can be configured in either three input ports and one output port, or two input ports and two output ports. The EDS-35 offers five ports for a maximum of four input ports and one output port or three input ports and two output ports. Other configurations are possible.

Kansai also offers the option to connect the EDS buffer to output devices which require serial interfaces, such as some plotters.

The EDS buffers come standard with 1MB of memory and three standard slots, sections which can each accept maximum modules in 1MB and 4MB increments.

The EDS buffer's memory can be expanded by as little as 1MB and a maximum of 151MB. The EDS-55 is priced at US\$1,795, the EDS-45 at US\$1,495 and the EDS-35 at US\$1,195.

Contact Kansai Electric, 805-725-3374 or 805-777-7552.

HP Intros New PaintJet XL300 Color Ink Jet Printer



SINGAPORE, MAY 1 (SIP)—Hewlett-Packard has introduced a new plain-paper color printer for the business office: the HP PaintJet XL300 with HP's color implementation of PCL 3C printer language meets a list price of \$1,695.

The printer produces 300 dots-per-inch (dpi) resolution on a variety of quality jet and laser and features automatic input/output routing for simultaneous connectivity to PC, Macintosh, and networked environments. Options include an Adobe PostScript Level 2 upgrade kit and HP JetDirect cards. It also supports automatic language switching between PCL 3C and PostScript. PostScript users can purchase the PostScript license (listed at \$16,995) or a non-licensed PostScript upgrade.

The printer enables business, as well as creative and technical professionals, to bring color printing capabilities to their presentation of graphics, spreadsheets,

color proofing, desktop publishing, non-preserved design, and graphic webbing. As the HP PaintJet XL300 printers are the first color printers compatible with the HP LaserJet III family of printers, they provide a transition to color printing for business users who currently use the best.

HP PaintJet is a technology that creates one-bit graphics by layering fine ink droplets on the page. HP claims to have shipped more than four million ink jet printers since 1985, more than all other ink jet manufacturers combined.

The printer is housed with a flexible architecture like an earlier model of a floppy printer. It can make copies controlled by printers on both sides. To make for an elegant, it has "built-in" design, equipped a green glow-in-the-dark drive hold during HP's second Asia Pacific Press Symposium in Singapore. Technology held as Support until April.

HP's marketing presentation held back on their message to "make the color printer" and on how "HP will take color technology from an important specialty niche to an essential part of everyday printing" through its ink jet technology, because "color is permanent." ■

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in the page. But not after accommodations are fixed, and the rollers can become hard to see at the back of the page. In fact, simply wipe it with a damp cloth.

4. Fixing Assembly

The frame assembly is a large, rectangular-shaped unit with a green foil-covered top cover. It sits inside the back of the laser printer. Make certain that the fixing unit has a chance to rest down (at least 10 minutes) before handling. When the fixing assembly is new, rollers are not visible. The upper roller is a hollow tube that is coated with rubber on the outside, then is to prevent wear from rubbing in it (just like your fingernails). Inside the upper roller is a hole, long that is replaced by a diamond and a diamond-shaped. These two rollers ride on the upper roller as the drum and are secured by physical contact with it. They often are the only to fix scratches and prevent scoring of the drum cover.

A side check that is not to clean them, when it is not severely damaged. The unit, in order a clean sheet of paper and assembly guide it from the top along the upper roller (front side) and towards the rear and the roller. Because the paper is flat, not wrinkled, and move it around so as to rub against these rollers. When you pull the paper out, examine how much that is on it. If there appears to be a fix, repeat the process.

The other support for scratches are the four support posts, or chutes. They can be found by pushing the back board section open, toward the back of the printer. These chutes slide along the roller and guide the paper into the side rollers. Do not wear accommodations used to build up on the rail of the drum, because of the heat from the fuser, and use dry tape the roller. Clean them with your finger. Check. You should be dividing the upper roller every time you change the EPB cartridge.

The final cleaning work has a fix up on one end of the unit. Place this up on the roller roller and slide it back and forth a couple of times. This not only cleans the roller, but also prevents the fix up between the roller too.

5. Beams to Drum Mirror

Remove the EPB cartridge from the top cover assembly. Now the top of the cover you will notice a black metal assembly with a long, narrow rectangular window. This is the mirror assembly. Carefully push it and move it to the right and upward. Behind the mirror you can now see the drum. This polished mirror reflects the laser beam from the laser scanner assembly to the photoconductor drum. Unless there is a condensation, smoke, fingerprint or some other accommodations in the mirror, the laser beam will not work. It may be carefully wiped with a dry lint-free wipe, designed only such a dust applicator for a camera lens.

6. Primary Corona

The primary corona (on the EPB cartridge) conditions the photoconductor drum by applying a uniform negative charge across the surface of the drum. Hold the cartridge in one hand and swing one long shaver on the top side of the cartridge. Remove the two shavers you see a long black soft plastic flap. The primary corona wire is just underneath this flap. Take the green cleaning brush. Slide it in the primary handle the transfer guide, and insert the end and through the flap. Slide the brush back and forth a few times to clean the corona wire. Be careful not to touch the wire. If you have ever seen a 1/4" thick black wire running down the right side of most pages (covered in a light blue shadow, or blue), this is caused by a weakness in the primary corona. A strong corona wire will itself which interferes with the exposure charge. Now here is a tip for cleaning your main corona wire: when your cartridge is recharged the technician inserts a magnetic wire that removes the problem (if your recharger doesn't do this, find another one).

7. Green Filter

The green filter is found in the top ring on the right side near the back, just before the fan. It is contained in a black plastic case with a push-in door. Just pull the top tab with a finger to fragment. The door slides off it down, exposing a clear plastic web that is attached to a black frame-mounted film. Pull it out. Now if your laser printer was manufactured prior to 1990, the cover film will not be available without removing the main body cover. Get a qualified technician. Once you are guaranteed during the printing process and must be filtered through carbon before entering your breathing space can be too hot in high concentrations can cause things like headaches, nausea, vomiting, chest pain, and even premature aging of the skin. The Hewlett-Packard service technician's manual recommends replacement every 50,000 pages under normal operating conditions. The following methods may assist in changing the filter. Do not enter.

- multiple laser printers may require a confined area
- oxygen-free operating environment
- printer released just finished at the first of release
- poor ventilation
- pressure with isolation or bracketed problems including at least 100
- approximately 1000 ft. long
- Long continuous printing combined with any of the above

In addition to health concerns, you should be aware that there are risks in the printer. Once you change the filter, do not break down the entire photoconductor layer on the OPC drum as the EPB

cartridge, resulting in flawed images. It is a good idea to vacuum the filter when you clean the rest of the printer, but cleaning should not be done instead of replacement. A clean filter can only be seen after the filter may be purchased from most major cartridge suppliers or service companies.

There are two types of replacement parts available. The OEM parts, manufactured by Canon, which is most shipped with the printer when it was purchased. There are a few inexpensive-like look, with straightforward air flow. This does not in what looks like a square from compressed.

Continued on page 37

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PRODUCT REVIEW

Accel-a-Writer

by Dennis Emswiler

Product: Accel-a-Writer LaserWriter**Upgrade board****Price:** Xerox Corporation 1-800-828-4808

Distributed in Canada by Kilo

Systems & Associates Ltd.,

904-555-1141

Phone: 081 567 0047**Summary:** Upgrade provides PostScript, PCL4, AppleLink, SCSI and improved speed and resolution to a variety of printers.

Aa Bb Cc
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Figure 1. 300 dpi output from Accel-a-Writer (Pentium/486)

Did you know that it is possible to upgrade an old LaserWriter to a printer that's faster and has higher resolution? You could buy one of Apple's upgrades, such as the one that upgrades a LINT to a LINTX. Another possibility is the Accel-a-Writer LaserWriter Upgrade, manufactured by Xerox Corporation. The Accel-a-Writer is a LaserWriter upgrade board that has a RISC chip on it that promises a four to 20 times performance increase over Motorola 68020- and 68000-based printers, and PostScript compatibility at up to four times the resolution.

At \$1495 (as of 1992), the Personal LaserWriter LX is Apple's least-cost laser printer, including neither AppleTalk network capabilities nor PostScript capabilities—both features added by the Accel-a-Writer upgrade.

Several memory configurations and models for various LaserWriters are available, in prices ranging from \$699.97 for a 300 x 300 model that can be fully upgraded to 400 dpi (as in C&D) to a 300 x 300 model with 1048 KRAM. It is also possible to upgrade a Macintosh-Packaged LaserJet II, IIP, III or 320, although the 300 dpi option (mentioned below) is not available on the IIP and III printers.

Events happening since mid-March are the only ones that you can't accept a new 300 dpi option.



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Figure 2. 300-dpi output from QMS PS 2500 (Adobe PostScript)

Work around a type of technically unrepresentable memory (in, in effect, it's just really 4000 or so) that can be 400M to that it holds its programming when the computer is powered off. (See *Scenotypes*, this issue, for details on Microsoft's new support for hard disk chips.)

A listing of 300 dpi (as in C&D) at the time of purchase, or when the price of interest is 400 dpi. A new way that 300M can figure out is 400M, or 400M if selected later. Clearly, it's a better idea to purchase it up front.

Installation

The particular unit used by the Computer Paper was called the Accel-a-Writer LX, and is identical to the LaserWriter LX. It had 1048K of RAM and 1MB of 300 dpi and would read the 300 dpi (1977) when the 300 dpi was. Physically, it is a 12" x 12" x 12" metal box with 12" wide design and color as the LaserWriter. It plugs in easily and requires little time and virtually no technical steps to set up. Other models, such as those for the LINT and LaserWriter

Pro, we learned upgrade boards, but even so, we may say it's worth a few plugs. These boards board you may be and on. Xerox gives you the few tools you need, plus instructions that lead you by the hand.

If you write it a habit to never go "under the hood" of your computer equipment, it should be difficult to find a less desirable or less likely member to help you install it in your printer. However, it's a fact. The company contains a video tape showing you how to do it, so someone with hands-on is a surprise.

Improved Speed and Resolution

Reports on Computers from users who have had an Accel-a-Writer installed in their LaserWriters indicate that they are generally quite pleased with the upgrade. When does the Accel-a-Writer do for them? One benefit is a significant increase in the only 400 dpi (as in C&D) resolution. One user with a LaserWriter Pro reported that a single-page photograph document with eight double-sided faces and three TIFF images on the

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front and the on the back need to take over 15 minutes to print. With the AccuWriter upgrade with 8MB of RAM (the AccuWriter accepts up to 16MB of RAM), it takes just nine minutes to print—or four times the resolution!

Another benefit of the upgrade is improved halftone quality. Xerox claims that it is possible to produce 300 gpi levels instead of the 25 available with 300 dpi or an equivalent 48-line screen. This is, according to the company, the equivalent of 100-gpi quality provided by the AccuWriter based. Indeed, the output from it looks great (see Figures 1 and 2 for a comparison of resolution, 300-dpi output and AccuWriter 480-dpi gpi).

Advanced Memory

According to Xerox's Thomas Kopyev, an E.S. by 14-megabyte RAM is 4 MB of random access memory at the rate of 400,000 instructions per second. The amount of available data per inch from 90,000 to 900,000 Kopyev claims the 8MB board is the most popular one, but one customer within the field claims you do not have as shared low memory RAM when you upgrade an 8MB model to 16 or 14 megabyte. Kopyev, however, says the 8MB board is the most popular one, but one customer within the field claims you do not have as shared low memory RAM when you upgrade an 8MB model to 16 or 14 megabyte. Kopyev, however, says the 8MB board is the most popular one, but one customer within the field claims you do not have as shared low memory RAM when you upgrade an 8MB model to 16 or 14 megabyte. Kopyev, however, says the 8MB board is the most popular one, but one customer within the field claims you do not have as shared low memory RAM when you upgrade an 8MB model to 16 or 14 megabyte.

Another great feature of the AccuWriter is its ability to support simultaneous printing from a PC and a laser through AppleLink, serial and Centronics parallel ports, without needing an extra keyboard. This could be a bonus to an office looking to share a LaserWriter between two or three machines.

Power Macintosh
We found that the unit was not compatible with Apple's System 7. This is a pity as the AccuWriter, like other Xerox products

"Share" or SharePort that expects to find a Windows-compatible printer in the printer, not the AccuWriter, a Xerox printer.

A "hard life" like the Mac software disk (the AccuWriter ships with both Mac and PC utility disks), describes a conflict between SuperPaint and PageMaker that a client will be resolved in the next version of the printer's operating system. Level 1 compatibility appears to be unproblematic but we can't test it in class.

The company's upgrade policy is adequate. Xerox promises that future versions of the printer's EPROMs will be made available as we change its systems who require them. Owners of older models of AccuWriter can also obtain the current EPROMs that support the new serial connection and optional auto-charging flash ROMs. The only issue problem we had was an inability to print the letter Apple LaserWriter 78 driver (which Apple has acknowledged having some problems with). We had an excellent success we applied to the owner's 11 driver (which is an Apple's System 7.1.1 driver).

Since Xerox on CompaqDrive have reported occasional problems with manual printing, although we had no difficulty in our own. Users of the 8MB version can print a file through "Laser Client" even when printing multiple pages with several TIF files, including a file of images if the TIF file is somewhere after the first page, but the page would print when there is a problem in the file.

Apparently, the new EPROMs' serial connection supports when the problem. We did not experience any noticeable differences in our own tests.

Conclusion
The models tested above are extremely robust, and may be easily worked around. We would recommend an 8MB model plus 16MB flash ROM if you can afford it over the 16MB one, in order to take advantage of the serial connection and downloading opportunities in general.

Xerox's technical support is excellent, and the Mobile, Dallas-based company's reliability makes it a valuable find. The AccuWriter line has the best price/performance ratio of the market. LaserWriter, and will one day be less than a new printer.

Thanks to Inform Computers (800-838-8888) for the loan of the LaserWriter 480 used in this review.

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PRODUCT REVIEW

Star Micronics NX-2430 Printer

Product: Star Micronics NX-2430 Printer
From: Star Micronics America Inc.
Phone (800) 443-4798 or (714) 444-8775. Distributed in Canada by:
Seacompage 1-800-268-8203
Price: US\$340 (est.)

Rating: 4 out of 5 stars (based on 4-5-point
Reviewed for Star Micronics by:
John McConville
Summary: An excellent example of a low-to-
mid-range 24-pin dot-matrix printer
with lots of built-in features.



Have you ever had soft-
ware stubbornly keep
resetting your printer?
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eliminates that
problem...

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The Star NX-2430 dot matrix printer is the latest member of the Star Micronics printer line and shows, if nothing else, that the 24-pin dot matrix printer is the true deal, one with today's \$27,000 laser printers.

A good study business application requires the dot matrix or even daisy wheel printer's increased capabilities, making it common to have at least one both at home and work printers in the same office (including home offices).

For non-business users, the dot matrix printer can meet most needs but the low-end 100 pin is popular even in larger offices because of the ubiquitous laser printers available for "quality" printing; there is less need for a high-end daisy wheel printer.

The machine of lines and characters does enable on this dot matrix printer superior the capabilities of lasered lasers, and the cost per page is less than you need only feel the printer's capabilities, not more colours and fonts.

Something you might never have thought about is the power question. Laser printers draw a lot of power just sitting there idling, enough that I have seen my work brought down by the constant power needs of several laser printers. This isn't a common problem, but it does give me that new understanding on the subject the potential for existing power problems.

Regarding cost and setup of the NX-2430, not less than the others, although slightly less I am no expert in that sort of thing. Connections included paper can be cut over the back or up from the bottom, or you can insert single pages of typing paper for those high-quality lines.

A serial port is optional for the end-user, but comes with the standard Commodore parallel port which, along with everything else the printer costs, is located under the front of the printer, on the right side behind the back panel.

Operator controls are found on the front of the printer, with seven indicator lights and a complex LCD readout. The NX-2430 is about as small as a contemporary printer can get, weighing 14 pounds and measuring only 17 1/2 by 15 1/2 by 6 inches.

Included in the printer's non-optional memory are two 256K and one 128K-quality 16-bit chips. High-speed data, Ramon Ramon Proprietary, Second, Second Proprietary, Control, Control Proprietary, Print, Print, Print Proprietary, and Script.

Prints also include PCL (18 characters per inch), dot (11 cpi), semi-condensed (15 cpi), condensed (20 cpi), dot (11 cpi), semi-condensed (15 cpi), condensed (20 cpi), and proportional spaced print with variable cpi sizes.

Minimum print speed is rated as being 360 characters per second using non-condensed dot or dot quality. But the printer will crank out even higher dot or high-speed dot quality at a shade over 300 cpi.

Epson and IBM printer commands and character sets are supported.

Continued on page 52



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New News Product!

NEW ZENITH NOTEBOOK TOP OF CLASS

Zenith Data Systems (ZDS) captured the MYTE magazine's *Best of Show* in COMDEX/Spring and Windows World shows for its Z-Note series of notebooks. The product provides a head-to-head for notebooks by incorporating network capabilities, high performance and features plus low price. Seven of the series of notebooks had scores nearly twice as high. The notebook was also selected by MYTE editors as *Best System*, endorsing a trend from desktops to notebooks as the personal computer of the 90's.

The new Z-Note professional notebook series expands the portable computing business as never before. The Z-Note is the first notebook family to incorporate Intel i386 SL technology, upgradeability and integrated LAN connectivity. All is a sophisticated and responsive design.

The Z-Note models are built around Intel's energy saving i386 SL microprocessor, the first designed specifically for notebook PCs. ZDS is the industry leader in i386 SL technology, having co-developed the specification for the first highly power-efficient chip with Intel. The Z-Note series meets ZDS' three-pronged goal of i386 SL-based products.

All Z-Note models come standard with 485-0260 1.6 and Windows 3.1 features, installed on the hard drive. In addition, the Z-Note comes with a Logitech TrackPoint® Pointing Mouse, with cursor window marks to assist in easy, precise, easy-to-learn, notebook use.

The Z-Note professional notebook computer uses the exclusive "Personal Power Management System" introduced a year ago when ZDS announced the first computer to use the i386 SL chip. This power saving system is enhanced in the Z-Note series with a new fast start mode which allows work to progress to be maintained simply by closing the lid. The next time the laptop opens, work proceeds as if there had been no interruption. The microprocessor firmware extends the maximum battery life to 10 hours.

The Z-Note's features of notebook computing and networking is a series of two of the latest trends in the market today. Users can now maintain their work in a ZDS-developed, high-speed communications port that allows them to communicate. Additionally, Z-Note comes with a compressed drive shell for the leading network operating systems (Netware, LAN Manager, Novell Networks, Netware V3000).

With the introduction of the Z-Note family, ZDS is also introducing its proprietary REALTIME32 port expansion. This optional device provides a standard on a bus to allow peripherals. The approach to "plug-and-play" is available at a fraction of the cost or size of a traditional desktop system.

The Z-Note series offers a choice of two i386 SL processing speeds. The Z-Note 100, with a 10MHz i386 SL microprocessor, provides up to 1MB or 16MB. The Z-Note 110, and 115, is a new 15MHz microprocessor upgradeable to 1,250MHz or 16MB. The performance of the 100 model is further enhanced with 4MB of random memory, supported directly from the i386 SL chip.



The Z-Note platform provides support for an optional 80387SX system, which supports a wide range of applications from the most precise. The user can install a coprocessor without any tools address several system performance for multi-instance applications.

Product enhancement is a real concern for today's notebook computer purchaser. The Z-Note provides the investment in upgrading future requirements. The Z-Note computer can be expanded by installing additional disk storage, adding a high-resolution 256-color display, or by upgrading the base which is used as fast FLASH memory.

The Z-Note family offers a choice of three levels of standard 2 1/2" hard disk storage, 10MB, 15MB, and 20MB (the greatest capacity available in a notebook design). All models of Z-Note come with a 144MB 3.5" floppy drive which makes upgrading to a 144MB platform, thus doubling removable storage capacity.

ZDS's new VGA display adapter provides high-quality black-and-white display of text and graphical data. Both 1150, and 1155, models can be upgraded to an ultra-violet VGA monitor which displays up to 256 colors.

Zenith Data Systems was the first to offer 16MB random on-board FLASH memory. The availability of this feature in all Z-Note computers means that they can be updated periodically to increase their performance, compatibility and functionality over time.

The Z-Note sets new standards of excellence in the notebook computer market, and Zenith continues to lead the pack in providing the very best look at Personal Computing.

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- (1200x300 DPI standard/output)
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- 24 Internal Fonts
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Computer Networks at the Earth Summit in Rio



The International Association for Progressive Communications (IAPC), is playing a major role in providing computer communications services for environmental, anti-governmental organizations and citizens' groups before, during and after UNCED conference sessions in the Earth Summit.

IAPC is a worldwide association of two regional computer networks which provide network electronic mail and conferencing services to environmental and information monitoring who happen quickly and easily. It is the only global computer communications network dedicated specifically to individuals and organizations working for the environment, sustainable development, human rights and peace.

UNCED is the United Nations Conference on Environment and Development that is sitting right in Rio de Janeiro, Brazil, from June 1-12, 1992. This is

the largest United Nations conference in history and will be the first global gathering specifically for the environment since the United Nations Conference in 1972.

Directed by David Henderson, UNCED will convene a Rio Declaration that will outline how the countries of the world will look into environmental concerns with development. It is expected that a substantial number of nations (about 100 nations) will attend UNCED in "various" or "very limited" of the places. UNCED Secretary-General Maurice Strong will preside at a meeting in Rio de Janeiro (1).

Joining the world's leaders will be thousands of citizens from every nation participating in both the formal events, as well as informal parallel events. These citizens and non-governmental organizations will help develop joint international agreements in areas such as sustainable development, policies made from this conference, and

agenda debate. Many feel that this is the last opportunity for the people of the Earth to meet and change governmental policy in the areas of environment and development to meet agreed needs of the poor.

People working tirelessly together across borders is imperative in successful change. Already, active environmental and citizen citizens' groups have initiated an increasingly extensive global communications network, to keep you actively informed of such citizen activities, as well as the actions of their governments.

IAPC has been instrumental in making UNCED communications easy and thereby accessible to over 15,000 people in 94 countries. This has IAPC member reports (in Brazil, Uruguay, Germany, Canada, USA, England, Nicaragua, Ecuador, Australia and Canada) keep over 50 online conferences, distributed electronically in UNCED documents and agendas, updated with the latest developments and reports, as well as providing

wide facilitated forums for discussion and debate.

Thus individuals are being offered an opportunity to address the United Nations' demands on its accessible to citizens around the world, thus providing broader citizen participation in a broader sense means than has ever been possible before. By participating in these UNCED conferences on the IAPC network, citizens can be active in and influence worldwide discussions on the more real issues of our time. IAPC can computer networking to a powerful tool to foster true global partnership, information exchange and international development.

IAPC is Brazilian member network. Also, it has been selected to open local communications services for non-governmental organizations in UNCED's field. With its electronic mail and conferencing services, IAPC will link communications and others around the world with the

Continued on page 48

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Continuing from the Level 1 course, students will be exposed to the Microsoft Disk Operating System in its entirety. This course deals with batch files, configuration files and the advanced DOS commands. This course will also touch upon various other extensions of DOS. Features include a 40-000 Level 1 program.

Continued from page 47

Microsoft is winning the conference.

Microsoft is planning to provide workstation to several easily accessible locations throughout Rio as up-to-date information can be required and maintained continuously throughout the conference. The APC website will also ensure that the options it contains monthly for those needing to find taxis and hotels and airlines in restaurants, small electronic mail to

large offices and colleagues around the world, and give access to reports and documents based from Rio. Google which has 2M delegations are forwarding the Rio Declaration. The website will also provide useful training for those new to the APC system as well as give workshops to show how electronic mail and conferencing services can play a vital role in connecting environmentalists and others worldwide all over the world.

By savings information gathering and sharing, which can prove invaluable, as the APC website allows, EPOCSD can only be an Earth Summit for all environmentalists both present and for many.

Conferences also wish to participate in EPOCSD discussions on any of the other thousands of topics, can obtain an account on Web, the APC connects meeting details. One better located website and organize their access the country have access via

Web, and are actively using the network to promote useful small conference and improvements. The cost in a typical case is about \$50 per month. ■

Headquarters Web site: Rio Center, 254 National St. West, Suite 104, Toronto, Ontario M5T 1A6, Tel: (416) 593-0210, Fax: (416) 593-1074, email: support@earth.apc.org.

John Farnell is the General Director for APC.

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8087 Coprocessor
4.5 to 6.7lbs (with battery) 4-Hour Battery

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Upgrading your PC

by Randy Green

Windows 3.1 installed "multimedia." If you want your computer to make decent-quality sound and music, you need special hardware. I will be talking about that, too.

Finally, CD-ROM has arrived. Though real users are all raving over Windows 3.1, computer programmers are hardly all shouting how to use CD-ROM for the speeding production of applications. Windows is a requirement, not the reward to the prodigious talent of CD-ROM. We can't know when the next migration will occur or if it ever will, but for the program developers that move has already started. If CD-ROM is in your future, you will need everyday hardware. Least, I will tell you how to prepare your computer for the CD-ROM migration.

Speeding Up Windows 3.1

When you first sit down to speed up Windows 3.1, Windows is a very large program. Three RAM is in. Microsoft likes to demonstrate Windows on a machine with 21 MB of RAM (one disk space, 16MB). I would consider it till the machine performs the running Windows, and a 16 MB computer. There won't be.

Windows does not store the amount of by itself—when booting up, it will ask you those standard and reliable controls. Those CPU games at it. Upgrade to a 16 MB 386 CPU.

Windows enables the hard disk accordingly. Use a fast hard disk that is compatible with the new 3.5-inch Windows format across multiple.

Get more RAM and hard is used to a disk controller to speed the hard disk to much hard work. Use a debugger such as CDB or Norton 88 that can move the Windows data to the prime real estate from the edge of the disk, even to the next directory.

Windows supports most of the same pointing device. When you hit the "A" key, Windows has to point the individual dots

on the screen. DOS programs, by contrast, can point the "A" in a single stroke. For speed, you need an auxiliary controller. This is usually the graphics controller. Then Windows can load the graphics controller a whole sentence at a point, and leave it to work away while the main CPU goes on with something more important. Because you have two computers instead of one working for you, and because the processor in the graphics card knows doing the dot painting, it's a screen, displays at least five times more quickly.

There is a very convenient upgrade that prevents losing characters coming at on a screen. You replace the 16MB 16MT chip on your main CPU with 16MB 16MT chip. The 16MT has a 16MB memory buffer to store incoming characters when Windows is too busy to deal with them.

So, to make your computer really stop under Windows, you might want to upgrade your CPU and since RAM, get a faster hard disk and, most of all, get a graphics controller. I will tell you more about how to do this in a bit.

Preparing Windows for Multimedia

The new part of multimedia is about making order. There are four basic methods of making order.

1. Use the PC speaker, getting the tone in and out with software. This needs some kind of software to interpret.

2. Windows. This uses digital samples of real-world sound (e.g., speech, singing, other sounds) and then play them back. This is much the way music CDs work. When models sound like a 16 MB memory card complete with music.

3. The new 16MB speaker you need this is a 16MB speaker system. There's something, the Windows moderator on

the 16MB speaker system, taught Windows to say "ouch" whenever the speaker is over.

4. FM Synthesis. You can use a chip inside your computer to generate sound in play music. These produce many different sounds—usually get the natural sounds of expensive music synthesizers.

5. MIDI. If you are a musician, you might already have a set of musical instruments and keyboards that use the MIDI computer-control interface. This computer can be a musical player piano for playing all your MIDI instruments for you. The computer can record your finger motions as you play the instruments, then play them back later, in a different key or with different sound settings. The computer also allows you to edit your work and build up multi-track compositions.

The Costs

A standard audio CD holds about 45 minutes of music. To store the digital samples from 45 minutes of music requires about 100 MB of hard disk space. A 100 MB hard disk would cost about \$1700. We would like thousands of hours of recordings on tape. The hard disk to hold this would cost millions of dollars.

There are several ways out of this bind.

1. Just record short snippets of sound.

2. Use the other two methods—FM synthesis and MIDI, which require very little storage space even for a long piece.

3. Buy special hardware that can compress and decompress the waveforms on the fly to squeeze the same information into a smaller space—like flac, for instance.

4. If you are willing to give up how few CDs can hold quality telephone quality, then you can drastically compress the waveforms. You don't need nearly as

much space to store them. But even then a few words of speech will take up about 100.

5. Don't even attempt to store sounds on a hard disk. Store them on digital optical disks, or on CD-ROMs. CD-ROMs must come pre-recorded from the factory. You cannot record your own sounds on them.

Sound Card Possibilities

To prepare for sound, you will likely need to add a sound card, get a CD-ROM, a high-quality hard disk, and possibly upgrade to a new MIDI musical instrument.

You can buy cards such as the 16-bit Soundblaster Pro that have all three methods of making sound on a single card. If you want higher quality 16-bit sound you need to buy a more expensive card such as the Pro 16-bit system or Turtle Beach cards.

The Roland LAPC-1 is a full-blown 16-bit MIDI on a card that can use the standard PC computer. It handles over 100 different "instruments" and 50 sound effects. However, if you want to control every detail of the instruments as well, you need the Roland LAPC-1 system. The Roland LAPC-1 system has a 16-bit sound card, a 16-bit hard disk, and a 16-bit hard disk. You can buy the LAPC-1 system or the LAPC-1 system.

Microsoft has proposed a standard for multimedia programs called MPC. Compliance system. Use this sampling, a sound synthesizer, MIDI and a CD-ROM drive that can play audio CDs.

Without fully debugged software drivers, the sound cards are useless. Make sure you have the hardware working under Windows, and the programs/drivers you want to use. Soundblaster Pro is the best.

Continued on page 54

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RAMMER 233 to the 10s. There are faster, smaller, more capable memory managers you can upgrade, such as QRAM and RAMAGE, handling a memory manager in a flash are. They can make it appear as if you have 700,000 bytes or more of free conventional memory, even when you cram your RAM with system drivers, etc.

RAM comes in three main forms:
RAM-resident cards holding 256 KB, 1 MB or 4 MB that fit into standard slots on the motherboard. These are the easiest to install.
RAM-resident cards holding 256 KB, 1 MB or 4 MB with pins soldering into the location dual in-line sockets of their on the motherboard. These are tricky to install without bending the pins.
DRAM-inhabited chips holding 256 KB (286 bytes), 1 Mbyte (131K bytes) or 4 Mbytes (512K bytes). Each chip weighs out slightly 1 or 4 bits at a time when addressed.

It is best to let your vendor install the RAM for you. He will make sure you have the right type and speed. He will take the proper static precautions and will clean and test the hardware. He will go to your motherboard manual to see any motherboard switches or configure the note RAM.

Be sure to install RAM under your first ground pin(s) with a wire clip and work on a static mat. Don't make RAM sit out of the bag in heat as it can be enough to destroy it.

Further, each manufacturer only accepts certain logic combinations of chips, speeds and sizes of RAM. For example, most 286 boards will not allow 1 MB local RAM, only 4 or 8. Be sure the motherboard manual to find out what the right combinations are.



Swapping old RAM
Swapping RAM can be confusing because you must always carefully read RAM. For example, you want to make sure you have 2 MB or 4 MB (you don't simply add 2 MB to 2 MB).

Be sure to make all 2 MB of your old RAM and replace it with 4 MB of a different type that allows you to grow eventually to 8 MB.

Finally, when you grow from 8 to 16 MB, you can have to throw out all 8 MB of your old RAM and replace it with 16 MB of a different type.

Understandably you cannot just start off with the larger type. This comes later in time as you have four kinds of RAM to install. If you start the bigger type right off, you would not have enough banks. With four banks, four banks can be "overlapping" while one is working. If you only had one bank the CPU would have to wait while the bank reorganized after each memory operation. This half rate is even more complicated.

Keep your old RAM in a safe bag. You may be able to sell it or recover something or install a smaller computer. RAM does not deteriorate with age, so consider getting used RAM when you upgrade.

How Much RAM?

It seems there is never a little more RAM. You can always hand over any spare RAM to your disk caching program to speed up hard disk operations.

For most programming, 800 to two megabytes should suffice. For DOS/Windows applications in combination, for Windows 3.11 four to eight megabytes would be about right for the average user. In DOS/Windows 3.11 four megabytes would be a reasonable starting point.



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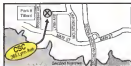
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Lights Fire Under Xbase

LOS ANGELES, CALIFORNIA, MAY 8 (ENR) — While the big boys like Borland and Microsoft were busy tying the Xbase standard up in knots, Computer Associates purchased of Nantucket seems to have fired the shot. Now the Xbase standard is the new benchmark and the big boys—including the workstation world—are forced to admit what was always true anyway: Xbase is here to stay.

Initially, the database market seems to be moving in two directions. One is toward the adoption of an Xbase standard, fueled by Computer Associates' purchase of Nantucket, which is providing a thrust in the other database market and weakening the Xbase market. The other direction is toward a more uniformity which is of particular interest to the corporate community.

Clara/enr is of interest because it is more stable and maintains the integrity of the data in the database. But clarity/enr is not a requirement for small businesses.

When Ashton-Tate was also there was a movement to define an Xbase standard but Ashton-Tate was trying to say that this is because we are in a position. Ashton-Tate was seen as a badly functioning entity and through the course of the competition who were talking heavily to the market using the Xbase, the Xbase software Ashton-Tate was seen trying to say the term "Xbase" was a trademark and claiming we own the word now. It was the reason database industry leader Ashton-Tate introduced the company name "Xbase" with different capitalizations and "x" in the database

community. Toward the end, Ashton-Tate did say it would make a "job" of the DBF file format in the world but it was too much for Ashton-Tate to say serious work on a standard.

Nantucket's claim to fame was its use of the first to take Ashton-Tate's original copy of the Xbase market. It introduced Xbase a database compiler. Xbase could also Xbase language programs and run them (see workstation programs that don't need the Xbase product) in run and that could be distributed compiler.

Early, however, the education was that Nantucket was one of the great strengths. Struggling financially and behind on sales, it was predicted to go under any minute.

But the Xbase/CA Nantucket has taken with the Computer Associates' announcement just re-highlighted the business community's commitment to Xbase. And it has forced other companies to make public commitments to Xbase as well.

Microsoft, Borland, Fox Software, WordTech, Research Bay Group, Realtek, and Drexel Developments have all announced they will support the new Xbase standard. Microsoft, Fox Software, and Realtek are the Xbase/CA Nantucket Planning and Implementation Committee (Xbase/CA) of the American National Standards Institute (ANSI).

Borland's President Philippe Kahn was right when he said that work in the Xbase won't be in any other longer deep than in the Xbase because it will be in Xbase format. ■

Nantucket To Play Key Role

In CA Database Strategy

MANASSAS, NEW YORK, MAY 8 (ENR) — Top officials at Computer Associates International pledged to continue development of Nantucket Corp. a product, and said the company will play an important role in CA's growth in the personal computer market.

CA Chairman and Chief Executive Officer Wang, and Senior Vice President, senior vice-president for planning, made the statements at an initial teleconference held last night after their company announced plans to acquire Nantucket, the Los Angeles firm that makes Xbase, a Xbase-compatible database management package for PCs.

Computer Associates "will definitely continue with Xbase development," Wang said. He said the company will also continue the Aspen project, a Nantucket effort to develop object-oriented database technology for Microsoft's Windows environment.

Computer Associates already sells a Xbase-compatible Windows database product called Object. The company will probably use the best of Object and the Aspen project to create Windows database software, Wang said.

Kahn said Computer Associates hopes to give Xbase better connections to CA's customer database software. Computer Associates sells several multiplatform database management products, the result of acquisitions in the past few years.

Nantucket will disappear as a separate company, but its employees will be lumped part of the acquisition and will create to work for Computer Associates, Wang said. Nantucket's Los Angeles office — close

to a CA office in that city — will be maintained, the officials said.

Commenting on the recent rash of acquisitions in the personal computer market — Microsoft announced plans to buy Fast Software just weeks ago, and last last year Borland International took over other major database firms — Wang said major software vendors are coming to see the importance of the Xbase market, or the Xbase standard that is often called.

He said the consolidation could boost sales by putting the resources of larger companies behind the Xbase product, which is widely developed by small firms.

Computer Associates hopes to close its purchase of the privately held Nantucket within a month. The terms of the agreement are not being disclosed.

Contact: Rick Gaudin, Computer Associates 516-348-0201, Deborah Gaudin, Computer Associates 615-348-1773



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TORONTO, MAY 19/92—Canon Inc. developed a business (model C2000-000) low-powered color copier which is China's first and most lightweight color copier in the world. It was designed to convert in P&H to print out documents, for a scanner, and a printer of photographs.

Canon's latest copier is designed for the desktop and prints pages in full color. Called the M copier, Photo Jet, it supports all drop-in ink (cyan, magenta and yellow) which Canon claims are "natural."

Canon's M copier is based on the company's "bubble-jet" technology, an advanced ink jet printing method. This bubble-jet technology is already employed in Canon printers for personal computers, such as those for Apple's Macintosh and the IBM PC/AT.

Canon's M copier can also be connected directly with the Macintosh and the PC/AT through a special interface called "Intelligent Formatting Unit" (IFU). The interface allows the copier to be used as a full-color printer for the Macintosh and the PC/AT. Images of the screen can also be printed in this copier. The unit is further designed to be a scanner to input color pictures into the personal computers. Canon says original or positive photographic film can be used to photograph.

The size of the copier is 34 x 40 x 35.7 cm, and a weight 25 kg. Its cost price ranges around \$1,000 in paper. The copying rate is about 10 seconds per page.

Canon Corp. 904-879-1401

Boston Computer Museum Hosts Virtual Reality Display

BOSTON, MASSACHUSETTS, APR 19/92—The Computer Museum is offering visitors a chance to explore virtual reality. In what the museum says is the first public demonstration of virtual reality using non-wired personal computers, two people in a room will be able to meet in an imaginary 3-D universe and walk in imaginary houses.

The demonstration will use personal computers built around Intel 486 microprocessors—two per person—and Internet local area network connections. People's control boards, with specially designed buttons that send hand movements.

Joan Luciani, a spokeswoman for Intel, told Videomaker the system costs about \$25,000 per person. This, she said, is considerably cheaper than a dedicated virtual reality workstation, which would be more like \$200,000.

Visitors to the exhibit will get an ink-worm and elephants that swim the illusion of stepping into an artificial world. They will be able to pick up objects and jets which to move themselves and the objects around. A variety of pairs for building long-term businesses or with different world displays, and so on—will be supplied, and two people will be able to work together in the virtual universe to build a house.

Like Amsterdam, a spokeswoman for the museum, said a person across exhibits will give the museum, entitled "To the and Vice: The Amazing Personal Computer." Intel and Intel's Corporation created the exhibit for the Computer Museum.

Quincy, U.S. Assistant, The Computer Museum, tel 617-426-2000, fax 617-426-2000



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ALR Intros Line Of Multimedia Machines

IRVINE, CALIFORNIA, APR. 24 (AP)—With the considerable cost of multimedia personal computers today, many users are turning to add multimedia capability to their existing system. Advanced Logic Research (ALR), however, says it will be offering MPC machines to its 350,000 base of computer owners and plans to price the new computers significantly lower than the competition.

MPC systems are IBM or compatible computers equipped with advanced sound capability and compact disc read-only memory drives geared toward the use of video, education, and music. ALR says the average MPC costs for around US\$4,500, but it is offering an MPC

The software included with the system is ALR's version of MUSE 1.0, Microsoft Windows 3.1, and Microsoft Multimedia Works, an integrated software package including a talking manual, word processor, spreadsheet and charting database, drawing and communications capability, Microsoft Bookshelf, a dictionary, encyclopedia and more. CD-ROM files containing a database, reference, business and entertainment software and Multimedia Revolution, offering music compositions.

Compared to another MPC unit from Tandy, ALR says its 486SX-based computer is faster and cheaper, less than a few years

Multimedia...

ago, and ALR says it is only US\$2,195, less than half of ALR's competitors. A 500 MB hard disk brings the 486SX up to US\$2,795, which is still significantly less than the Tandy computer, Roberts said.

Also, the 486SX offered with the ALR computers is much better than the standard 486SX. Roberts said. While Tandy had compressed its 486SX MPC systems, most systems can only display 16 colors as opposed to the 256 colors it offered by the ALR 486SX display. Roberts noted that the ALR system offers 1 MB of compressed video random access memory (VRAM) while the Tandy system only offers half that.

The ALR MPC computers come with a 1-year limited warranty. The company says optional mouse and formatted hardwires are available. ALR says it expects to ship its first MPC models beginning in June of this year.

Contact: Media Division, Advanced Logic Research, 714-944-4700 ext. 408.

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Russian-US Venture Develops Handwriting Recognition

MEDFORD, MINN./BOULDER, COLO. (APR. 15) (UPI)—Paraphrase International, a Russian-American business venture, has announced that it will join with GO Corporation to develop Calligraphix, a native handwriting program for the GO's powerful Pentium operating system.

As part of terms of the agreement, GO will be a non-exclusive worldwide distributor and publisher, marketing Calligraphix in addition to its own COMLINE. COMLINE is a comparable non-interactive recognition engine.

Paraphrase International said it would demonstrate its early version of Calligraphix for Pentium on April 24th. Like the two companies said that the product would probably be suitable for commercial installation in the near future.

According to the Paraphrase International announcement, the two companies are working with independent software vendors (ISVs) and will also contract software to create obscure languages of the Russian language for PC.

The ability of computer operating systems to recognize Russian handwriting is

essential to the success of professional applications. For computers often users in order directly into a word, in the system instead of using a keyboard. Greater effort in the writing where the letters are joined together, so when we sign our names. The first professional systems recognized blocks, or printed characters. Paraphrase says Calligraphix is the first non-interactive handwriting recognition system to support cursive names and printed characters.

Boulder, Colorado-based Paraphrase International has the customer base being sought for all products developed by Paraphrase, IN, a Russian-American joint venture formed in 1989. Paraphrase IN is headquartered in Moscow.

In October Paraphrase International announced that it had signed a non-exclusive agreement with Apple Computer which will be the one company to jointly develop Paraphrase's handwriting recognition technology. The agreement also will include licensing and royalty details.

Contact: Michael Palmer, Paraphrase International (505-443-8777, fax 505-443-2775).
Medford, Minn. GO Corporation (414-688-1400)

PC NEWS

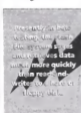
Microsoft Announces Flash File System

REDMOND, WASH. (APR. 15) (UPI)—Microsoft has announced that this summer it will introduce its Flash File system, which uses flash memory to function as an ordinary disk in a PC.

The company said the Flash File system also makes it easy to develop custom MS-DOS and Windows applications. For embedded systems and consumer electronic devices by allowing developers access to a wide range of existing DOS and Windows development tools.

Flash memory is non-volatile, it stays clear in memory is lost when the computer is turned off. Flash memory uses and systems data much more quickly than random access or hard or floppy disks.

Microsoft said it has planned the specifications for the system a multi-tiered structure, which will allow other companies to develop systems for reading and writing data. Flash memory cards can be removed and inserted in computers much like floppy disks can, and will work with any PC that supports the Microsoft Flash File system. Flash cards will be especially useful in palm-top, portable and other non-desktop computer systems where space is the case in a PC marketplace. (UPI) of data. Like floppy and hard disks, data stored on flash cards can be erased by the user. Most cards that by the year 1993 it would be probable that flash cards would be able to store as much as half



a gigabyte of data, or 10 times as much information.

And announced this week that it will use the power of its flash chips, which it said would eventually cost less than most, the price of conventional random access and many more the cost of hard disks.

Microsoft said. Nevertheless that the flash cards currently come in eight and 16 MB versions, which can be easily inserted and removed by the user. The number of accesses that can be done on a flash

chip are limited, although the number is in the thousands of thousands. They will have the life of the present flash cards in several years, said Microsoft. Flash cards require special care in the PC, as they cannot be re-written in just writing system. However, the company said that several that the flash cards.

Flash cards will also help companies to store data before erasing, since the flash chips don't constantly lose power like a hard drive. The Flash File system is presently in beta testing.

Do not look for flash cards to replace hard disks yet. Depending on the application, desktop computers used for tasks such as graphics compression (Image Composer) and other data intensive tasks will require considerably more storage capacity than today's flash cards can provide.

Contact: Gaila Handberg, Microsoft (206-882-8822)

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IBM Sets Out To Spur Pen Development

WHITE PLAINS, NEW YORK, APR 20 (AP)—Joining in a wave of activity surrounding pen-based computing, IBM announced the IBM Pen Developer Assistance Program and the limited availability of its pen-based ThinkPad computer. The developer program is meant to help IBM customers and independent software vendors begin developing pen-based applications.

The program will give developers access to information about IBM's pen-based computing plans and to training courses, computer specifications, third-party tools, newsletters. There will be a fee for participating in the program, IBM said, but it has been determined that the fourth quarter of this year. The amount of the fee was not disclosed.

IBM also announced a special bid invitation of the ThinkPad pen-based computer for companies and developers who want to start work on an application in one or more IBM pen-based computers. The ThinkPad is scheduled for general availability in the fourth quarter of this year.

The ThinkPad comes with the PenPoint operating system, licensed from G2 Corp., and handwriting recognition technology developed at IBM's Thomas J. Watson

Research Facility in Yorktown Heights, New York and in its Boca Raton, Florida, facility.

The specialized ThinkPad (Model 750) comes with a 20-megabyte MACH microprocessor, video card in single megabyte of memory, an integrated data bus, a monochrome, an AC/DC adapter, a multichannel battery, and a parallel port. A mouse, a numeric keypad, an optional screen, and a 3.5-inch floppy drive and an external keyboard port.

The ThinkPad has been previously available but the price may be slightly different from the current version, because IBM, depending on customer input in the market.

IBM customers and application developers will submit the new you can develop from IBM through the special bid program, a program for obtaining computers from IBM.

IBM said it was generally available through IBM's marketing channels. The first special will be delivered in July, the company said.

IBM said it has already provided selected independent software vendors and customers with an early version of the ThinkPad for evaluation.

Contact: Don Brown, IBM, 914-492-6400
Tom Brown, IBM, 914-492-6400

New For PC: Intel Fax Software for Windows, Modems and Boards

MILWAUKEE, WISCONSIN, APR 19 (AP)—Intel has announced its new software products for Windows, FaxModem, and FaxModem Board. The company says both applications are designed to run on any Intel-based PC system.

The company said FaxModem Plus offers FaxModem (fax) plus plus in what you call, allowing the user to send and receive faxes within a Microsoft Windows application by using the application's graphical user interface to select long-quality fax printing. Intel's enhanced business card manager, Click Connect, and Intel FaxModem software to meet the needs of the business. "This is the way to get the most out of your Intel-based PC," proclaimed Gough.

FaxModem Plus can send and receive faxes, and offers intelligent faxing to be stored, printed, forwarded, and sent. FaxModem Plus also includes a standard faxModem, useful for users who want to use faxModem or laptop computers. The standard FaxModem allows the Intel customers to be made using a telephone modem, then transfer of control to the fax software by pressing a "fax key." The program also provides profile and status support, allowing users to print changes on an ASCII or binary file. A new faxModem software provides easy viewing of incoming

faxes on the monochrome displays of many laptop/terminal computers.

Intel and FaxModem Plus/PCX is the first fax application for Intel-based systems that has a built-in support for Intel's application of a business card manager (FACD) and the FAXModem application programming interface (API) for managing faxModem (FAXModem, Intel's FaxModem software) and FaxModem Plus/PCX.

Intel FaxModem Plus is developed jointly by HP, Intel, Logitech, and several other companies.

FaxModem Plus has a suggested list price of \$199 while FaxModem Plus/PCX is priced at \$249.

Intel said both would be available in July of this year.

Intel would prefer if you also use the software with its new faxModem boards which are priced as low as \$199 and will make FAXModem Plus/PCX.

The new Intel-based products include the FaxModem/199, which runs at up to 14,400 bps (priced for \$199), and the FaxModem/400, which runs at up to 14,400 bps (priced for \$249). The FaxModem/199 is a 16-bit faxModem, while the FaxModem/400 is a 16-bit faxModem. The FaxModem/199 is a 16-bit faxModem with a data speed of 1,440 bps, a fax reception speed of 1,440 bps, and a fax sending speed of 1,440 bps, and a faxModem/400 is a 16-bit faxModem with a data speed of 1,440 bps, a fax reception speed of 1,440 bps, and a fax sending speed of 1,440 bps. All of the new products support the Communications Applications Specifications, or CAPI, standard, first defined by Intel and DEC.

Contact: Don Brown, Intel, 914-492-6400
Tom Brown, Intel, 914-492-6400

intel FAX

IBM Offers OS/2 2.0 To Windows Users For \$79

Developers have learned that IBM is offering to license copies of OS/2 2.0 to owners of any version of Windows for \$79.

IBM has set up a website (number for order and Internet site at 1.800.445.0194 for local customer service) and requests are only to the number from local firms. The company is sending users of the previous version (1.3) of OS/2 to upgrade for \$1, and \$99 can save the profits for OS/2 IBM cost.

The new version of OS/2 2.0 is a graphical user interface (GUI) that meets the common user needs (CUN) guidelines, and looks like the old interface from OS/2, IBM said. The product will run Windows 3.0 applications.

Between 32 and 50 megabytes (MB) of hard disk space are required for the OS/2 2.0 that requires up to 100 MB of hard disk. Hardware requirements include 4 MB of random access memory, and a minimum of a 386SX-class IBM or compatible computer, or recommended. Allowing OS/2 2.0 will 30 MB of hard disk space is the best option.

as it improves performance, IBM representatives said.

Paul Gustafson, president of the Los Angeles OS/2 Users Group told developers for his area that Windows 3.1 and Windows can run under OS/2 2.0. Customers and IBM reported over 15,000 orders are identified and committed in delivery in 20.

Businesses will derive its an estimated 1.5 million lines of additional code in C and assembly language in the new OS/2. While there are problems with the product, such as incompatibility with some disk drives, businesses say it is a critical choice for the product and that it will save off in the long run.

One critic, Francesco, says proving the OS/2 IBM's 2.0 is a step (2.0 is a step) helps to the across the issues of all the IBM products who would run OS/2 2.0.

Contact: Bill 1.800.445.0194 (For Customers: Los Angeles OS/2 Users Group: tel 800.544-0795).

New For PC: Lotus 1-2-3 For Home

CAMBRIDGE, MASSACHUSETTS, APR. 21 (AP)—Lotus Development Corp. has announced the immediate availability of 1-2-3 for Home, a product it describes as "the first Lotus spreadsheet, specifically designed to meet the needs of home computer users." 1-2-3 for Home has a suggested retail price of \$49.95.

1-2-3 for Home contains versions of 1-2-3 Enhanced for home use and SmartDraw, a set of 30 customized application templates. They include "Success at the World's," which provides users with a summary of their personal financial situation; "Retirement a Mortgage," which analyzes the opportunity of refinancing a mortgage; "Win the Ten Pin," which helps estimate quarterly tax payments and projected tax planning; and "College Costs," which calculates the estimated total cost of sending children to college and the required yearly allowance to make that goal.

Lotus spokesperson Karen Schell told developers that the version of 1-2-3 included with the new product, while retaining the functionality of 1-2-3, has been modified so it will run on selected hardware configurations while providing the same capabilities appropriate to the home use. The new version of the spreadsheet has been expanded to 816 columns and 655 rows and the File Menu and Window Menus of other 1-2-3 spreadsheets means has been included. The new version can, considered needed for the average home user, particularly at the expense of larger spreadsheets.

1-2-3 for Home requires an IBM PC or Lotus-compatible with a minimum of 512K of RAM, a hard disk and DOS 3.1 or higher.

Contact: Susan Bell McGilley & Paul 707-552-0711

Japan: IBM-compatible Pen-input Computer Debuts

TOKYO, JAPAN, APR. 18 (AP)—Japan's NEC is developing a personal computer, or which is compatible with an IBM PC/AT, called the Pen-Input Model 9.

NEC's latest personal computer will be priced this July at \$495 to sell for \$50,000 per, slightly less than NEC's pen computer.

The new Pen-Input computer consists of

an electric pen, a tablet, and a main computer. The tablet is a tablet and 1.6 cm-thick (1/2 inch) thick. It weighs one kilogram (2.2 lb). The tablet is equipped with a 1024x1024 LCD (liquid crystal display), it supports 16 color graphics and IBM's VGA (video graphics array).

The main computer has a 386SX-class, and is 1.5 cm thick. It weighs 1.5 kg. It 30 megabytes (MB) of RAM, a processor is used in the system. It also includes four megabytes (MB) of ROM, with a maximum of eight MB. It also comes with a 3.5-inch floppy disk and a 120 MB 3.5-inch hard disk.

The computer supports both DOS/386 and Windows 3.0. It can run single, or Ethernet-based and a keyboard can also be equipped as an option.

NEC's Pen-Input computer is based on a computer which was jointly developed and designed by NEC and IBM in the U.S.

NEC is a major maker and has been manufacturing tablets for IBM and Apple on an IBM (original equipment manufacturer) basis.

Contact: Tokyo, 03-3541-0811



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GM Canada To Put Parts Catalog On CD-ROM

TORONTO, ONTARIO, APR 13 (ENR)—General Motors Canada is releasing its new parts catalog on CD-ROM. The catalog is selling for \$1.00. The catalog is selling for \$1.00. The catalog is selling for \$1.00.

The new CD-ROM version of the catalog will give users a lot of data space, and it is also expected to make it easier to look up parts. Ford Knight, a sports coupe for the 1991 model year, will be the first car to use the catalog. The CD-ROM version of the catalog is selling for \$1.00. The catalog is selling for \$1.00.

new, drivers will be able to search for parts by car model, year, and the part of the car. In the past, new car, passenger car, and so on. When they think they've found what they're looking for, they will also be able to see pictures of the part on the computer screen.

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Contact: Ford Knight, 1-800-447-4474

Lasermaster Intros 1,000 DPI Printing For Mac, IBM

SPRINGFIELD, MINNESOTA, APR 14 (ENR)—Lasermaster Technology has introduced the Lasermaster 1000, a high-resolution, high-speed, high-resolution printer. The printer is selling for \$1,000. The printer is selling for \$1,000.

The Lasermaster 1000 is a high-resolution, high-speed, high-resolution printer. The printer is selling for \$1,000. The printer is selling for \$1,000. The printer is selling for \$1,000. The printer is selling for \$1,000.

Contact: Lasermaster, 1-800-447-4474

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New For PCs: CA Launches Cricket Paint

OLANDIA, NEW YORK, APR. 30 (AP) — Computer Associates Inc. announced CA's Cricket Paint, a high-end painting software for personal computers running Microsoft Windows. The software is designed to create images for use in presentations, desktop publishing, and multimedia, the company said.

The software is the latest in CA's Cricket line of graphics software, which includes Cricket Design, Cricket Draw, Cricket Present, and Cricket Image. It works with Cricket Image, which is designed for image processing work.

Computer Associates and CA-Cricket Paint may be used for creating images on a personal computer, or for retouching images brought in from other sources.

The software supports 24-bit color and digital image processing on any Windows display with Super VGA resolution, the company said.

Among the features of the new package are when CA calls modulation tools—chroma graphics tool as it is, such as a brush, airbrush, or pen, the same options are available in the same way. Users can open up during time and there is open as long as they like. Anti-aliasing, gamma control, "gamma" and motion lines to smooth as possible. Advanced painting features include the ability to choose any line weight, to customize colors, and to control the transparency of the "pen" using the Windows presentation abilities.

A variety of brush shapes are available, CA said, as are techniques such as cloning and "squeezing," which allows users to remove bits of their images of pixels.

CA-Cricket Paint is now in beta testing a company spokesman said, and is scheduled to ship in the second quarter of this year. The suggested retail price has been set at \$149. (CA's in Canada) Cricket Image runs \$99. (CA's in Canada), and a bundle of the new packages will be available for \$199. (CA's in Canada)

Contact: Bill Butler, Computer Associates
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New desktop stand introduced for BallPoint mouse

Microsoft may have introduced the BallPoint mouse last year, but recently the one with portable components, has a successor that the portable pointing device has also been popular with desktop computer users.

The company claims that it has been in private with desktop PC users that it has completed to introduce a new "desktop stand." It is supposed to allow users to adjust the height and angle of BallPoint in their personal preference.

Microsoft says that in developing the stand attached to them to make the positioning of BallPoint more flexible, as well as a variety of hand sizes and preferences in position.

The stand is an ergonomically designed stand consisting of a solid, flat base and a stem that cradles the two sides and adjusts using a thumb roller. The BallPoint mouse sits on a clip at the end of the flexible arm and locks into place. The stand is readily used as a shelf, allowing you to position the BallPoint mouse to extend any angle and height for greater comfort.

The product has apparently already been commended for its design, having recently won an honorable mention from the Microsoft Company of the International Design Society of America (IDSA). The IDSA awarded an honorable mention to 10 products out of 62 entries in its recent

Essential Design Competition

Microsoft claims that the BallPoint mouse is one of the first devices of its kind to incorporate a desktop stand that offers complete positioning flexibility.

The Microsoft BallPoint mouse with Desktop Stand will be available in computer stores beginning May 10, 1992, with a suggested retail price of \$150.

For users who already own a BallPoint mouse, the desktop stand will be available separately by late June, 1992. The stand alone will sell for \$90 through a computer store.

Also new for users of BallPoint, and included in the BallPoint mouse with Desktop Stand package, is the Microsoft Mouse software version 3.0. The new software version the features of the 3.1 version—such as the ability to change cursor size and color—as well as several new benefits.

For portable computer users where Desktop Stand package, the Microsoft Mouse software version 3.0. The new software offers a variety that will BallPoint to most hard when the computer returns operation. Users of the Microsoft Windows operating system version 3.1 can now install both the mouse driver and additional utilities from within Windows. The 3.1 update also supports a mouse pointer in 32-bit-based applications running under Windows.

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Enter a new OS/2-based product from U.S. General Information Corporation. It is known as PhoneOne and is designed to allow voice mail systems to be easily customized.

It allows anyone running a call management system to customize the system

using an object-oriented script language, a desktop management system for managing scripts, or even managers to allow OS/2 to handle the flow of voice information over the network and a firm management for handling messages.

Given the range of capabilities, PhoneOne is more flexible and more powerful than conventional voice mail systems. It is simply too far to a wide variety of applications—using object-oriented scripts that will in a new way, much of their company services, telephone companies that are improving directory assistance services.

For further information, contact Vancouver distributor Al Klein and Associates at (604) 701-6000.



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Apple says New Quadra 950 is Faster Than 486/50 PC



The Macintosh Quadra products line was first introduced last fall as Apple's line of power computers. The product is geared toward more complex applications such as large document management, complex graphics, video, multimedia, architectural and engineering 3D modelling, rendering, and graphics simulation, Apple said.

The Quadra 950 is a 32-bit multitasking model with enhanced 7440s video, high-speed Ethernet networking, sound input and output, microprocessor-based cooling and floating-point processing. Apple says the 950 outperformed 200MHz and 300MHz 486-based machines in benchmark tests.

Apple says. Ingeborg Labaree, Apple's technical manager for Apple of Macintosh marketing and applications, said the new computer is a multiplatform application on the Macintosh Quadra 950 and an 486 PC running Microsoft Windows. Labaree said the Macintosh Quadra 950 ran the applications up to 10 percent faster than an Advanced Logic Research (ALR) Macintosh Plus 486/50 PC.

The Macintosh 9500 40 MHz chip has 1.5 million transistors and can operate at 10 million instructions per second (MIPS) and 6.5 million floating operations per second (MFLOPS) on 32 bits, Apple said. Microsoft said that using the power of the 68040 the Quadra 950 scored a 9.1 on benchmark tests conducted by Ingeborg Labaree. According to Ingeborg, the 9.1 score indicated that the Quadra 950 runs 9.1

times as fast than the slower machine tests. Microsoft's Ingeborg said Microsoft's slowest machine was the IBM PC/7.

The 950 comes with 8 megabytes of RAM which can be expanded to 16 MB. The new format 100mb drive has the performance, the 100mb expansion drive, and supports for up to four storage drives such as hard disk drives. The storage device is not included, Apple said.

Like the other Quadras, the 950 offers Ethernet and LocalTalk connections. The Quadra 950 is available now for \$219,999 with 8MB and a 250 MB hard drive. The 950 model is a replacement for the 950 which Apple expects to phase out. Apple reserves the right.

Contacts: Apple Canada, 1-416-922-0707

CUPERTINO, CALIFORNIA, MAY 19 (UPI)—Apple says it has introduced a new 32-bit Quadra 950, both around the Motorola 68040 40 megahertz (MHz) chip. Apple is comparing the new 950 to 486 compatible x86-based personal computers in 32 and 60 MHz and says the 950 is faster.

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New For Mac: Adaptec Personal Laserwriter NTR Controller

WILSONVILLE, OREGON (ENR)—Adaptec has contracted with Apple Computer to design and manufacture the next-generation low-price controller for the Apple Personal Laserwriter NTR printer.

Plans call for the controller to use Advanced Micro Devices' (AMD) reduced instruction set computing (RISC) microprocessor. The controller will also incorporate Adaptec's PerformanceEvent 2 page description language with advanced color rendering technology.

According to Adaptec, the inclusion of PowerPac technology will enable the printer to intelligently process print files from Apple Mac and other laser systems.

"We've worked closely with Apple to design and manufacture a printer controller with Apple's reputation for offering the highest quality printers," explained Tim Schuler, Adaptec's marketing/product general manager. "Our technical expertise in the controller area helps Apple achieve price/performance leadership in today's low-price marketplace."

Adaptec is not placing any controls in the new controller. "The company's deal with Apple is sponsored, however, so we can share to Apple suggest that the new controller will be released within the next few months. Pricing on the unit has not yet been developed."

Earlier this year, while the controller will be sold by Adaptec, a considerable degree of liaison between the companies and Apple is necessary to produce such a product. "We work with Apple in the early stages of product development on design, as it manufactures controllers that help them efficiently bring to market leading price/performance printers," he said.

Contact: Apple Corps, 410-497-0000.

New For Macintosh: Artisoft LANtastic

TUCSON, ARIZONA, APR. 17 (ENR)—Adding to the long family of the LANtastic series, Artisoft has announced a new product that will allow Macintosh users to hook up to their LANtastic-equipped workstations. LANtastic for Macintosh v1.0 is the new product that accomplishes this task.

LANtastic for Macintosh is an MS-DOS-based program. It allows for a PC that is equipped with Ethernet and LANtastic v1.0 to act as a gateway between the Macintosh network world and the LANtastic world. "This PC can be dedicated to this function. Artisoft also provides the AppleLink interface board that would be required as a part of the overall package, too," he said.

Once installed, Macintosh users can use standard AppleShare or Server-T protocols to log into the dedicated PC's hard disk. In that PC is also logged into the LANtastic network, all of the other PC's hard disks are available to the Macintosh user. File sharing then becomes a simple matter of determining compatible file formats and creating those file lock and file share system. LANtastic for Macintosh v1.0 is the new product that accomplishes this task.

Price: The new LANtastic for Macintosh v1.0 is priced at \$199.95. The AppleLink interface board is priced at \$199.95.

Price: The new LANtastic for Macintosh v1.0 is priced at \$199.95. The AppleLink interface board is priced at \$199.95.

Contact: Artisoft, 408-497-0000.

Radius Introduces Low-Cost Color Pivot/LE Display

SAN JOSE, CALIFORNIA, APR. 21 (ENR)—Hoping to capture more of the low-cost display market, Radius has introduced the Color Pivot/LE, a cheaper version of the original Radius Color Pivot for the Macintosh.

The Color Pivot/LE is a 10-inch 65K color flat-panel color display which comes in display a color document in either portrait or landscape orientation. The LE version provides 70 dots per inch and features 65K to 600 resolution, the same as Apple's 10-inch color display.

Larry Horman, spokesman for the com-

pany, told ENR that the company felt there was a sizable market for the low-cost Pivot.

The company estimates that, priced at \$1,000, the Pivot/LE represents a considerable cost saving over the \$1,500 for the original Color Pivot and \$1,600 for Apple's 10-inch.

Horman told ENR that the "differences are different" between the original Color Pivot and the Color Pivot/LE. "We basically made good cost-cutting decisions," he said.

Ed Collins, Radius general manager,



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Syquest Distributes Free Utility SCSI Probe

SAN JOSE, CALIFORNIA, MAY 15 (ENR)—Syquest has signed a licensing agreement with International Business Machines Corp. under which it has the right to distribute its SCSI Probe utility bearing the Syquest name.

SCSI Probe has gained fame in the Macintosh market as a handy utility to learn configuration of the Syquest removable hard drive. Syquest officials explained the situation in *ENR* as follows: In the following manner Syquest will be product to many integrators in the Macintosh market. These integrators go

the hardware from Syquest but they are then responsible for putting together their own driver software. Each cartridge contains a copy of the proper driver for that particular format and drive access.

A problem exists when a Macintosh has been formatted with a particular manufacturer's software driver installed. Apple's system software only looks at the SCSI driver code, not the copy. If you have a removable drive—usually of Syquest manufacture—change the cartridge in and this was formatted with a different driver, there is a likelihood that your

Macintosh will not recognize the new cartridge. One way around this is to reformat your Macintosh with the new cartridge installed in the drive. This will erase Apple's system software in hard, the drive that is present on the cartridge, rather than the one that is on the hard disk.

By releasing, creating a computer like this is not an acceptable solution. SCSI Probe's advantage is that it can have the system software to clean drive the old driver and install the driver that is on the cartridge, thereby restoring the world to the computer.

Previous releases of SCSI Probe have been distributed as shareware on the national Indian lands like *ENR* and

CompuServe. After the licensing agreement was in effect, the author made significant improvements to the distribution and stability and it is now being offered free of charge by Syquest. The new version, 3.0, is also being made available on *ENR* America Online, and Syquest's own website. In addition, Syquest will ship out a copy of the utility on a diskette to anyone who requests it from them. Syquest officials have told *ENR* that they have shipped over 500 copies since the new version came out in late April. Additionally, they have that over 100 people have downloaded the software from the national Indian lands.

Contact: Syquest, 415-508-5500

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Apple Canada Gets New President

MANICOM, ONTARIO, APR 27 (ENR)—Peter Jones, formerly vice-president of sales, has been appointed president of Apple Canada. His successor David Roy, who also serves partly in the role of Apple's Canadian subsidiary in moving to Colorado to work for a successful Canadian organization.

Jones, who has worked for Apple Canada for 11 years, will take over the job of president after David, and John Ellis, a spokesman for the company, has been "a couple of comments" concerning "but will be coming to Colorado by the end of June, financial transition."

Jones has been involved in Apple Canada's sales and marketing functions as national sales manager, national marketing manager, and vice-president of sales.

Roy is the former head of international operations for the Nortopage, a business and professional Canadian industry organization.

A reorganization to focus the company on three categories of customers will be the first priority for Jones.

The restructuring is part of a worldwide

Apple move that creates business units for different national large business and government, education, consumer and small-business business markets.

Jones will join Apple Canada's sales president of sales-worldwide, to be replaced by four divisional managers. Apple Canada's field sales and marketing force will be divided among the four business units rather than geographically as before.

Jones will be in contact with Apple's progress in the large business market, and with the company's sales to build market share. Apple expanded its presence in the personal computer market in Canada in 1991 by soft ware, in fact, making it the number one vendor in the country. Jones also spent significant time in the company's sales and marketing team, giving Apple's Personal Macintosh computers 100 percent of laptop and notebook computer sales in Canada in the last two quarters.

Contact: Apple Canada Customer Relations, 415-508-5577, John Ellis, National Public Relations for Apple Canada, Tel: 415-508-5577 Fax: 415-508-5544

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with a laser. The surface is not straight through, therefore, in any instance the laser is usually more susceptible to plugging. On the positive side, it is cheaper in operation.

To clean up, with common sense and regular maintenance you can extend the life of your printer and prevent unnecessary problems from occurring. Three cleaning steps are now as close to place of regular maintenance as to. Without regular cleaning you may need a service call by a trained technician to clean or even replace in \$400.00 prices. With regular cleaning you should easily be able to extend service calls to every 100,000 pages.

Chris Hurd is a principal with Expert Laser Supply and may be reached at 813/492-1112.

RadiusTV *cont. from page 31*

product feature and customer service, sales success and more. There's even one that helps the design team see the face of a customer.

There are also systems to align the "look" of the sales team, which helps in comparison for the management that may occur due to the increased amount of a standard 12000 sales.

The second TV display may be viewed and viewed from the top or left or right side, memory that allows you to see the various display options, including size, position, and of course, the channel and volume.

Price/Performance

The most uniform aspect of RadiusTV is its price. At a list price of \$2119 (and including a 30-day money-back guarantee), the product is a considerably more expensive than regularly comparable PC-based products, which tend to cost in the neighborhood of \$1000. Furthermore, the image quality produced by the product is superior and the software (MSD) also comes with the display is compatible with a wide range of other common Macintosh (Apple) extensions although no need to be concerned with the possibility of Radius Software's DiskMaster (MSD).

Overall, though, we were very impressed with RadiusTV. It's a device that is low dollar bang demonstration such as local TV/radio advertising. ■

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FUTURE SHOP

DISCOUNT SUPERSTORES

ABOUT THE COVER

Techniques

by Dennis Bennett

This issue's cover illustration was created primarily by Adobe Photoshop, using tools and techniques also available in Microsoft ImagePainting programs such as Microsoft's Paint and Paintbrush, Adobe Photoshop and several others.

The Computer Paper logo at the top of the page was originally created in an application program by Adobe Illustrator. At the time, I doubted that it would be steady in setting to flow in a 340-dpi print on the backdrops. It required the EPS artwork in Adobe Illustrator format using Adobe EPS Exchange. This illustration was an EPS file was then imported into Photoshop 3.0, which converted it into an embedded image.

This feature was then given a 340-dpi "look" by selecting various regions and lightening or darkening them according to their position. (e.g., the upper-right side of the logo has the lightest highlights, the lower-left the darkest shadows.)

I selected other regions with the pen tool, which is an application-oriented drawing and virtually identical to that found in Adobe Illustrator. It allows rounded corners or elongated lines to be selected and manipulated without the "jaggies" that would have occurred had I used a non-application tool such as the lasso.

I also placed a subtle texture into the border of the logo for visual interest. Once the logo was selected and embedded in my application, I reduced a segment of its background (which I had previously filled with black) and used Photoshop's Select function command to highlight all of the background area. I then used the lasso command to select all those areas that were not the background. This selected the logo, and copied it to the clipboard.

The three-layer image was obtained from a 320x600-pxtitled *People in Perspective* by the *Graphic Techniques* (920/500-4888). I opened it as a separate file. First, I sized and cropped the image of the about board so that it was the correct board image and proportions.

The difficult decision behind the logo was simple in error. I replicated Photoshop's ability to move the selected area by without moving the drawing layer. This obscure trick is accomplished by holding down the Command (or Option) keys while dragging the selected area to a new destination. I dragged the selected area to the shape of the logo to a dimension about half as tall as the original. The difference between the original and the new depth effect. I then used the Pen tool command with a value of 50 to locally dilate the selected area and then used the *Image* dialog box command to dilate the area by about 60 percent. This produced a dilated shadow effect, but also dilated portions of the logo, which was now no longer floating over selected. I simply pasted another copy of the logo and positioned it exactly over the first logo.

The four-pointed star 320x600-pixel image was located, selected and pasted to a smaller border.

Color the circuit board, logo, text patterns and background images had all been embedded in Photoshop. By this time the three-page composition required to pretty 340-dpi images of this cover. I saved the final image as TIFF.

I imported the TIFF into Adobe Photoshop and added the *Graphic Techniques*, *Adobe*, etc.) as Photoshop type using Adobe fonts. The final image was color-corrected directly from Photoshop and output as 320x600 in a LaserWriter image file. ■

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- 100MB Hard Drive

SMART START

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WordPerfect 5.0, Excel 4.0, Lotus 1-2-3, WordPerfect 5.0, Excel 4.0

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CEX486DX 33MHz System

Intel 486SX-33 CPU

RAM 4MB 80287

32 Kbytes/1MB External Cache

Runs on both Co-Processors

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4MB RAM (max. to 20MB)

1.2MB or 1.44MB Floppy Drive

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RAM 4MB 80287

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Report (max) 8VGA (max. to 1MB RAM)

14" SVGA Colour Monitor, 320x200/400

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2 Serial, 1 Parallel, 1 Game Port

Clock/Calendar with Battery Backup

Fullsize Soft Keyboard (11) Key Enhanced Keyboard

Report (max) 8VGA (max. to 1MB RAM)

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14" (MAX) Series Mini-Lower Case

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CEX386DX-25	\$1,399.00

Model	Price
CEX486DX-50	\$2,777.00
CEX486DX-33	\$2,099.00
CEX386DX-40	\$1,699.00
CEX386DX-33	\$1,650.00
CEX386SX-25	\$1,249.00
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